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NEW ENGLAND HEART ASSOCIATION

DYSPNEA*

BY J. H. MEANS, M.D.†

DYSPNEA is a most important symptom and in twenty minutes we can touch merely a few of its high spots. The term means difficult or labored breathing, and I like to use it in the sense of subjective difficulty: in other words, consciousness of a difficulty in ventilating the lungs in contrast to hyperpnea which is objective, a sign, and means simply increased lung ventilation of which the patient often is unaware. The difference in the terms is analogous to the difference between dysuria and polyuria.

The symptom dyspnea occurs in normal persons on due provocation, and it seems that each one of us has a certain point, which we may call the dyspnea point or threshold, beyond which increase in lung ventilation, due for example to the performance of muscular work, becomes distressing. Pathologic dyspnea is merely a lowering of this dyspnea point or threshold.

In considering the morbid physiology of dyspnea I find it helpful to try to identify, on the one hand, the factors which determine the quantity of air that the body requires the respiratory bellows to pump, and on the other, those which determine the capacity of the bellows for pumping. Among those which determine demand for ventilation we have such items as the general metabolism of the body. Increase in this imposes a handicap on the patient by augmenting the lung ventilation he must supply even at rest and it constitutes an added load when he attempts to do muscular work. Elevation in general metabolism is found in thyrotoxicosis, fever, and leukemia.

Changes in the gas transporting power of the blood necessitating more blood to carry the respiratory gases also call for increased lung ventilation, as for example in diabetic and other acidoses.

If the mass movement of blood falls, as in congestive heart failure, the respiratory mechanism has to compensate by hyperventilation.

The factors which impair the efficiency of the bellows are those which diminish the vital capacity of the lungs or interfere with the excursion of the thorax or diaphragm. Air space within the chest may be encroached upon by hydro- or pneumothorax, by congestion, edema, or consolidation of the lungs, by loss of pulmonary elasticity as in emphysema, by bronchiolar obstruction as in asthma, and by intrathoracic tumors. The excursion of the bellows may be interfered with by palsy or other abnormality of the diaphragm and by disorders of the thoracic innervation, musculature, or skeleton.

From the clinical side our interpretation of the answer to the question "How good is your wind?" must give consideration to such factors as age, physique, state of physical training, and individual susceptibility to distress. We must remember that individuals vary greatly in these respects. For example, obesity on the one hand and psychoneurosis on the other may be quite adequate explanations of dyspnea. When we come to more strictly pathologic dyspnea we find such causes as anemia. The patient with anemia has dyspnea on effort only. This is due to asphyxia, the result of the lowered oxygen carrying power of his blood. He has no orthopnea.

The dyspnea of patients with cardiac disease lends itself well to physiologic interpretation. The onset of the symptom may be slow or rapid. The first objective finding is a lowered vital capacity of the lungs. The air imprisoned in the chest, the so-called residual air, is increased. This may be due, as Weiss has suggested, to loss of lung elasticity, the result of the turgescence of the lung brought about by beginning pulmonary engorgement. In later stages of cardiac decompensation, there is more marked pulmonary congestion and edema of the lungs, which also encroaches on air space. These, together with slow blood flow and consequent anoxemia and piling up of carbon dioxide in the blood call for extra ventilation.

Blumgart's theory of orthopnea is interesting in this connection. He believes it is explained on the basis of increased venous pressure in the veins leaving the brain. When this pressure rises above a certain point, the medulla becomes asphyxiated because of restricted blood flow. The upright position corrects this as it reduces the venous pressure in the head.

One other bit of physiology bearing on cardiac dyspnea has to do with the phenomenon of

*Summary of paper read at the fifth meeting of the Cardiac Course of the New England Heart Association, March 4, 1931.

†Means—Chief of Medical Service, Massachusetts General Hospital. For record and address of author see "This Week's Issue", page 971.

oxygen debt. During muscular work we all go into debt for oxygen and on cessation of work pay this debt off. This means that we continue to be breathless for a time after work has stopped. In the case of the cardiac patient the debt incurred is greater and the recovery period prolonged.

In addition there are a variety of paroxysmal types of dyspnea seen in cardiacs which are more difficult to explain.

CYANOSIS AND CLUBBING OF FINGERS*

BY T. DUCKETT JONES, M.D.†

CYANOSIS

THE cause of cyanosis consists of a change in the character of the circulating blood, the component responsible being that portion of the hemoglobin which is not in the state of oxyhemoglobin, but is reduced hemoglobin (or methemoglobin or sulphhemoglobin). The amount of reduced hemoglobin, or the volume per cent. of oxygen unsaturation of the blood must reach a certain value before cyanosis appears. This is due chiefly to the opacity of the epidermis, by reason of which a certain intensity of blue color is required in the corium in order to show through. About 5 grams of reduced hemoglobin per 100 c.c. of capillary blood appear necessary to cause cyanosis, the amount of oxygenated hemoglobin also present having relatively little effect. It is probably the blood in the capillaries and possibly also in the arteriole and venules of the subpapillary plexus which produces the color.

There are a number of factors modifying the resulting color, none of which can produce cyanosis themselves. Of these modifying factors, the variation in number, width, and length of blood-filled capillaries in a given surface area is important.

The causes of cyanosis may be outlined as follows:

I. All the blood passes through lung tissue accessible to air, but diffusion is hindered and oxygenation in the lungs is incomplete. This occurs in—

1. Low O_2 pressure in the alveoli (high altitudes)
2. Swelling and thickening of alveolar wall and consequently diminished permeability to oxygen (pneumonic changes, pulmonary fibrosis, etc.)
3. Inefficient ventilation from shallow breathing.

The cyanosis of this group is relieved by oxygen administration which raises the oxygen pressure in the alveoli and increases the rate of diffusion into the blood.

II. Presence of an unaerated shunt between the veins and arteries. This occurs in—

1. Congenital perforation of cardiac septum.
2. Collapse or consolidation of part of a lung with persistence of the blood flow through the region. It has been calculated that if over 1/3 of the output of the heart is shunted from right to left without aeration, cyanosis develops.

Oxygen administration does not affect the cyanosis of congenital anomalies, and helps that of lung collapse only if the collapse is incomplete.

III. Greater reduction of oxyhemoglobin in the tissues:

1. Local chilling of a part, or rise of venous pressure which retards the circulation, will slow down the local rate of blood flow and so increase the reduction of the blood.
2. Diminished circulation rate in heart failure is accompanied by high oxygen utilization in the tissues. The oxygen consumption in the tissues must be raised to about 2½ times the normal before cyanosis can be produced by this factor alone.

That cyanosis is a common accompaniment of the various types of heart disease is well known, and needs but little emphasis. In many congenital heart disease cases it is a constant finding, even with good compensation, but in other types of heart disease cyanosis is present largely during actual heart failure or in those cases with a considerably diminished cardiac reserve. The cyanosis of various types of heart disease may be summarized as follows:

1. *Congenital Heart Disease.* Cyanosis has been noted in 35 to 50 per cent. of reported cases of congenital heart disease, and its presence or absence has been used as the basis of a broad classification of such anomalies. It occurs frequently in association with clubbing of the fingers and toes. The cyanosis is largely due to a right to left circulatory shunt as a result of the congenital anomaly. If no other anomaly than a patent septum or ductus arteriosus be present, the blood must tend to flow from the left to the right side, because of the higher left side pressure. In autopsied cases of septal defects alone, in which cyanosis was present clinically, dilatation of the pulmonary artery and diminution in the size of the aorta have been found as a rule, causing more blood than normal to pass through the pulmonary artery. The

*Summary of paper read at the fifth meeting of the Cardiac Course of the New England Heart Association, March 4, 1931.

†Jones—Instructor in Medicine, Harvard Medical School. For record and address of author see "This Week's Issue", page 971.

association of pulmonary stenosis and right to left shunt defects is common. If there be no cyanosis at rest, exercise may produce cyanosis, by increasing the oxygen utilization in the capillaries. External cold also accomplishes this, and the concomitant polycythemia is also a factor.

2. *Heart Failure.* Cyanosis in heart failure is a varying quantity but usually present to some degree, and its disappearance is a good prognostic sign. The cyanosis present results from a combination of three factors, of varying importance in different conditions:

a. The reduced rate of blood flow or diminished circulation rate produces capillary stagnation resulting in an unusual reduction of the blood and high oxygen utilization.

b. Secondary pulmonary changes, such as congestion, edema, hydrothorax (as well as shallow breathing), result in poor oxygenation of the blood in the lungs.

c. Congestion of the systemic veins and capillaries due to failure of the right heart may be a factor.

3. *Mitral Lesions.* It is well known that patients with lesions of the mitral valve often exhibit conspicuous cyanosis. This is not difficult to understand where there is definite evidence of congestive failure, but it is difficult to explain why slight to moderate cyanosis may exist without failure. In addition, cyanosis during congestive failure is more conspicuous in patients with mitral lesions, than in those with other types of heart disease. A frequent explanation is, that due to right heart failure, pulmonary ventilation is poor. Actual measurement fails to show any decrease in the minute volume and blood flow in the extremities of such patients. In addition, mild cyanosis is present before there is a rise in venous pressure. Since cyanosis is found over commonly exposed portions of the body, it may be inferred that some peripheral vascular factor capable of slowing the capillary blood flow must be concerned. But probably congestion or engorgement of the pulmonary blood vessels is the chief factor.

CLUBBING OF THE FINGERS

The association of clubbing of the fingers with various pulmonary diseases is well known. The common conditions in which it may be found are lung abscess, empyema, and bronchiectasis. It is also well-known that clubbing of the fingers, and at times of the toes also, is to be found in a good many individuals with heart disease. The exact cause of clubbing is unknown, but the soft tissues are usually involved, there being hyperplasia, and such clubbing is generally associated with capillary dilatation and slowing of the peripheral circulation. It is hence commonly found in association with cyanosis. Clubbing of the fingers may be briefly discussed under the two types of heart disease in which it is most often found.

1. *Congenital Heart Disease.* Clubbing of the fingers has been reported in congenital heart disease in as high as 35 to 40 per cent. of the cases, but this would seem a rather high percentage. It is found in those cases with well marked and chronic cyanosis, and develops after the cyanosis. The presence of cyanosis and clubbing of the fingers is considered evidence of the more severe congenital lesions and is rarely consistent with longevity.

2. *Subacute Bacterial Endocarditis.* Clubbing of the fingers of some degree is found in about half of these cases, but is very variable and not conspicuous in more than one-quarter of the cases. It is most evident in those patients having a palpable spleen, and is not an early feature of the disease. The cause is probably a local disturbance of the circulation as opposed to the general anoxemia found in congenital heart disease.

THE FACTOR OF BRONCHIAL DYSPNEA IN HEART DISEASE*

BY SAMUEL A. LEVINE, M.D.†

DYSPNEA is the most common and the most important complaint in heart disease. Heart disease in one form or another is very common. Chronic bronchitis, emphysema, asthma, and combinations of these are also very common and cause dyspnea. It therefore follows from the above obvious statements that there must be an appreciable group of patients who have both heart disease and some form of bronchial trouble. It becomes extremely important both from the point of view of treatment and prognosis, to determine, in patients suffering from dyspnea, how much of a factor the bronchial element is playing in the production of dyspnea. Not only would we expect to find a certain group of patients who have both cardiac and bronchial disease, merely because the two conditions are common, but I have in recent years been led to believe that patients with rheumatic valve disease, especially mitral stenosis, are somewhat more prone to have chronic bronchitis of the asthmatic type than the average individual. It has seemed

*Read before the New England Heart Association, Boston, March 4, 1931.

†Levine—Assistant Professor of Medicine, Harvard Medical School. For record and address of author see "This Week's Issue", page 971.

to me that the frequency of the latter two conditions in the same patient is greater than can be accounted for by mere coincidence. May there not be a concomitant allergic state of the heart in response to the rheumatic infection and an independent allergic condition of the bronchial tubes of the ordinary asthmatic type? In other words, such patients may be allergic in two different ways.

A proper appraisal of the cause or causes of dyspnea in a given patient ascribing the proper proportion to the circulatory system will aid greatly in making more accurate prognoses and directing more effectively intelligent treatment. There are patients with mitral stenosis and auricular fibrillation who have been digitalized properly and have continued on the required daily dose of digitalis, who at times become more dyspneic than usual. During these times the heart examination may be identical with that observed when they were feeling less dyspneic. The vital capacity of the lungs however, may have appreciably diminished and yet there is no evidence of peripheral circulatory failure. Râles will be heard throughout the chest on careful examination. These râles, however, will not be limited to the bases of the lungs, nor will they be moist in character as seen in circulatory congestion. They will be musical and expiratory squeaks such as are frequently found in asthmatic chests. Sometimes they will be elicited only on deep breathing or they may be entirely absent. Under such circumstances, direct questioning may uncover a history of wheezing. All these points indicate that the new element of dyspnea that has arisen in this patient is not cardiac but bronchial. Such a patient would not be helped by increasing the digitalis, but might obtain considerable relief by taking potassium iodide or by steam inhalations. Furthermore this upset is frequently transitory and even without therapy may pass away with a change in the weather.

There are times when a known cardiac is taken with a sudden attack of dyspnea while at rest. In general, attacks of spontaneous dyspnea in heart disease constitute an ominous sign. They are common in hypertension, aortic disease (especially syphilitic), and in arteriosclerotic heart disease and may present a rather dramatic picture of great suffocation and distress. Such patients not infrequently have acute pulmonary edema with moist bubbling râles. There is a group, however, in which sudden dyspnea not quite so alarming, is entirely bronchial in origin, although occurring in a patient with an independent cardiac condition. This latter group may respond quite favorably to adrenalin or ephedrine just as is observed in the typical attacks of bronchial asthma. Such dyspnea has not the same grave prognosis as has the former.

I recall an elderly lady with hypertension whom I saw ten years ago. She had dyspnea at rest especially at night and sometimes coming in the form of attacks. She had enough arteriosclerosis so that one might have regarded her as suffering from arteriosclerotic heart disease. If that had been the cause of the spontaneous dyspnea, her outlook would have been serious. Such a grave prognosis was given to the family by a competent consultant who attended her. When I examined the patient shortly afterwards it was noted that although there was respiratory distress of the orthopneic type, careful auscultation of the chest revealed a somewhat prolonged expiration and râles that were of the squeaking type and that were heard throughout the chest, rather than the moist râles customarily heard at the bases of the lungs. On simple treatment, using potassium iodide and steam inhalations and a little ephedrine, or possibly despite the treatment, the patient improved and became ambulatory. She has had occasional similar upsets at various times during the past ten years and has not at any time shown evidence of circulatory failure. In this instance the dyspnea was entirely bronchial although the patient had well compensated arteriosclerotic hypertension.

The differentiation of the two factors of dyspnea, giving to each its proper significance, will aid greatly in prognosis. We often see cardiac patients who appear desperately sick and are given a rather gloomy prognosis, but we find that they carry on for years more satisfactorily than we expected. In recent years many new aspects of heart disease have been discovered which are greatly diminishing the number of such errors in judgment. We now know how desperately ill a patient with coronary thrombosis may be and yet recover satisfactorily. There are numerous other features that need accurate analysis such as the rôle of infection, which may entirely alter the prognosis. A young patient may be dangerously ill, even with generalized anasarca, primarily as a result of an acute rheumatic infection and yet may recover completely. Such an event is possible and does occur because an infection may end and the heart recover. If such an extreme degree of heart failure had resulted, not because of any self-limited condition such as an infection or an occlusion of a blood vessel, but in the ordinary course of progressive heart failure, it would be extremely unlikely that complete restoration of the function of the heart could be reëstablished. Proper understanding of the rôle that bronchial dyspnea plays in heart patients will further aid in avoiding errors in prognosis, for this type of dyspnea, although uncomfortable, is not serious. A history of wheezing or detection of a prolongation of the expiratory sounds and the elicitation of râles of the squeaking, musical type in contrast to moist râles, all aid in this differentiation.

THE VELOCITY AND VOLUME OF BLOOD FLOW*

BY HERRMAN L. BLUMGART, M.D.†

THE blood flow in different areas of the body varies widely. The attention and effort of many investigators consequently has been directed to the study of the blood flow through the lungs, since this reflects the mean blood flow of the entire body. The two most important types of methods for estimating the volume blood flow through the lungs of man are the methods based on the so-called "Fick principle", and the methods based on the rate of absorption through the lungs of some foreign gas. According to the Fick principle, if the amount of oxygen or carbon dioxide absorbed or given off by one cubic centimeter of blood as it passes through the lungs is known, and if simultaneously the total quantity of oxygen absorbed or carbon dioxide given off through the lungs in unit time is measured, dividing the latter by the former will give the volume blood flow through the lungs in unit time.

The velocity of blood flow through the lungs has been studied by measuring the interval between the time of arrival of the active deposit of radium in the right auricle and its subsequent arrival in the large arteries of the arm.

The history of the growth of our knowledge of the pulmonary circulation, a description of the various methods employed and a critique of the underlying assumptions cannot be reviewed within the confines of this brief presentation. Only a few of the results which are important in their applicability to clinical medicine will be presented.

The main factors which influence the volume output of the heart and the velocity of blood flow through the lungs were clearly stated by Harvey over three hundred years ago. "In the meantime this I know and declare to all men, that sometimes the blood passes in less, sometimes in more abundant quantitie, and the circuit of the blood is performed sometimes sooner, sometimes slower, according to the age, temperature, external and internal cause, accidents natural or unnatural, sleep, rest, food, exercise, passions of the mind, and the like." The quantitation of these factors has been the object of modern investigation.

The most important influence which leads to increased cardiac work is a general increase in the metabolic rate of the body. This close interrelationship between metabolism and blood flow is clearly evident in patients suffering from thyrotoxicosis. In a series of such patients the basal metabolic rate averaged 33 per cent. above the normal and the velocity of blood flow through the lungs was 83 per cent. above the average of normal. The greatly increased work of the heart even under basal conditions serves to explain the frequency of circulatory insufficiency in such patients. With lowering of the metabolic rate by the administration of Lugol's solution or by thyroidectomy, the slowing of blood flow was in every instance proportional to the fall in metabolic rate. These findings afford a rational explanation for the dramatic alleviation of the signs and symptoms of circulatory insufficiency frequently observed following these therapeutic measures.

In patients with myxedema the metabolic rate is lowered below normal and, similarly, the velocity and volume of blood flow is greatly diminished. The blood flow, while lessened, is nevertheless adequate for the abnormally low needs of the tissues. The heart may be able to perform the relatively small amount of work required under such circumstances but may be incapable of meeting the increased demands when the metabolic rate is raised toward normal. Such patients may show none of the evidences of circulatory insufficiency while the metabolic rate is low but may develop alarming signs and symptoms of circulatory failure following the administration of thyroid extract. The necessity for cautious administration of thyroid substance and the frequent advisability of previous digitalization is apparent.

Similar considerations apply to other states in which the metabolic rate may be elevated. Digestion, emotion, exercise are attended by an increased metabolism and the occurrence of attacks of heart pain and other evidences of circulatory insufficiency under such circumstances are more readily understood and more intelligently treated on the basis of the studies of the velocity and minute volume blood flow through the lungs.

Certain other conditions impose an increased amount of work on the heart apart from any increase in the metabolic rate of the body as a whole. Epinephrin, for instance, after its subcutaneous administration, produces an average increase in velocity of blood flow through the lungs of 170 per cent. with a rise in the metabolic rate of only 15 per cent. Such findings support the clinical caution exercised by many in prescribing epinephrin for patients with circulatory insufficiency.

Anemia also leads to an increased amount of cardiac work. The greater the diminution in hemoglobin concentration, the greater the extent, even at rest, to which the blood supply must be increased to transport adequate amounts of oxygen to the tissues. In such patients exercise places a relatively great burden on the circulatory system. This is an important factor in the frequent presence of dyspnea in patients

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†Blumgart—Associate Professor of Medicine, Harvard University. For record and address of author see "This Week's Issue", page 971.

with severe anemia such as pernicious anemia. These facts explain why anemic patients with angina pectoris may frequently be relieved of their attacks of pain by improving the condition of the blood and indicate the necessity of appropriate treatment of the anemia in order to relieve the patients of symptoms of circulatory insufficiency.

TESTS OF PHYSICAL FITNESS*

Physiology of Muscular Exercise

BY ARLIE V. BOCK, M.D.†

DR. BOCK presented a summary of the results of his investigations of the effect of exercise on the blood and circulation. He emphasized the *wide limits of response of normal individuals to exercise*, varying from untrained subjects to the champion Marathon runner, De Mar. Some observations of interest about the physiology of muscular exercise published by Bock and Dill in a recent revision of F. A. Bainbridge's book on this subject (Longmans, Green and Co., Ltd., London, 1931) are as follows:

"The net efficiency of the bodily machine usually varies from 20 to 25 per cent. under favourable conditions and when deduction is made for the resting metabolism only. Higher efficiencies have been reported, especially in climbing, but in such cases deduction has been made for the energy equivalent of the horizontal component.

"The chief conditions which affect the mechanical efficiency of the body are training, coördination of the central nervous system, the speed with which work is performed, and fatigue.

"The experiments of Pavlov show that any time interval can be employed in establishing a conditioned reflex. There appears to be no experimental evidence for the existence of a natural rhythm with a period long enough to affect the adaptability of an organism to a given task. The adaptability of the human organism to a complex environment weighs against the hypothesis of the existence of a long period natural rhythm.

"Physico-chemical changes in the blood during exercise depend upon its severity. In moderate exercise the properties of arterial blood differ in no important respect from those of resting blood. Haemoglobin concentration in blood and concentration of protein in serum increase 5 or 10 per cent. Evidently exercise, especially under emotional stress, calls forth reserve haemoglobin from the spleen under some conditions. This has been demonstrated in cats, dogs, and horses, but not conclusively in man. Oxygen saturation, carbon dioxide pressure, and hydrogen-ion concentration in serum and cells of arterial blood are within the limits of normal variation in rest. In short periods of severe exercise, with exhaustion approaching, lactic acid increases to eight or ten times the resting level, bicarbonate decreases to one-half the resting level, oxygen saturation may decrease somewhat, the temperature may increase to 100° or 102° F., and there is invariably acidosis of arterial blood. There is no evidence, however, of much change in distribution of ions between cells and serum, apart from that due to change in hydrogen-ion concentration.

"The rate of oxygen consumption of the body during exercise varies almost directly with the amount of external work performed so long as a steady state can be maintained. A similar relationship exists between pulmonary ventilation and oxygen consumption of the body. When exhaustion approaches at the end of a short period of exercise there is an increase in ventilation out of proportion to oxygen consumption. This excessive ventilation probably is a consequence of decreased oxygen-supply to the tissues which leads to lactic acid accumulation, increase of acidity and decreased saturation of arterial blood.

"The hypothesis that changes in hydrogen-ion concentration of arterial blood are responsible for control of the respiratory centre is no longer tenable. The greater pulmonary ventilation during exercise is due partly to variation in physico-chemical conditions in the respiratory centre, partly to vagal reflexes due to peripheral mechanical and possibly peripheral chemical stimulation, and perhaps to increase in sensitivity of the centre due to irradiation of impulses from the motor cortex. There is also an effect due to temperature which may be brought about through change in metabolism of the centre, by change in physico-chemical properties of the environment of the centre or by both these causes acting together.

"The circulation rate round the body depends primarily upon the output of the heart, and this, which varies during rest from 4 to 8 litres a minute, may reach 20 litres or more during heavy work.

"The larger output of the heart per minute involves a corresponding increase in the diastolic filling of the heart. It is concluded that the heart does not possess any diastolic tone and that its filling is determined entirely by the venous inflow.

"During exercise the return of blood to the heart is increased partly by the active muscles, which mechanically squeeze blood out of their capillaries and veins into the great veins, and

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†Bock—Physician, Massachusetts General Hospital. For record and address of author see "This Week's Issue", page 971.

partly by the respiratory movements, particularly those of the diaphragm.

"In response to a larger venous inflow, the heart can increase its output per minute either by a larger output per beat or by acceleration of the pulse-rate. The output of the heart per beat is shown to depend upon 'the law of the heart,' which states that the force with which the heart muscle contracts during systole varies directly with the volume of the heart at the end of diastole. . . .

"The conclusion is reached that dilatation of the heart normally occurs during exercise and is a strictly physiological process, since dilatation of the heart, by increasing its contractile power in accordance with the law of the heart, enables the heart to increase its output per beat in response to a larger venous inflow. Such dilatation reaches its physiological limit when the heart at the end of diastole fills the pericardial sac.

"The influence of acceleration of the pulse upon the output of the heart per minute is determined by the rate at which the heart fills during diastole. If the venous inflow is small, the heart fills at a fairly uniform rate during diastole, and increased frequency of the pulse, while lessening the output of the heart per beat, scarcely affects its output per minute. If the venous inflow is so rapid that the heart fills almost completely early in diastole, acceleration of the pulse only slightly diminishes the output of the heart per beat, and its output per minute increases almost proportionately with the acceleration of the pulse. In these circumstances, the acceleration of the pulse, by enabling the heart to transfer blood more rapidly from the venous to the arterial side, also brings about a fall of pressure in the great veins.

"The output of the heart per minute is the produce of its output per beat, which ultimately depends upon the contractile power of its fibres, and of its rate. Hence, the smaller the output per beat, the greater will be the frequency of the pulse necessary to maintain a given output per minute, and in this way greater frequency of the pulse can compensate for lessened contractile power of the heart muscle. . . .

"Since the maximal pulse-rate during exercise is much the same (about 180) in different individuals, the maximum output of the heart per minute, which varies in different subjects, depends upon its capacity to increase its output per beat, that is to say, upon the contractile power of its fibres.

"The gross mechanical efficiency of the heart (20 to 30 per cent.) is higher than that of the body as a whole, and in the normal man the heart is probably equally efficient both during rest and during exercise. The efficiency of the heart diminishes if acceleration of the pulse occurs without a corresponding increase in the output of the heart per minute, or if the heart becomes dilated beyond its physiological limits.

"The effectiveness of the larger output of the heart in increasing the blood-supply to the active muscles, to the heart and to the brain during exercise is greatly enhanced by constriction of the splanchnic vessels, and by dilatation of the vessels in the muscles (and heart). It is calculated that, as the outcome of these processes, the flow of blood through the active muscles may be from six to nine times greater than during rest.

"During severe exercise the active muscles may take up from each fraction of the blood flowing through them twice as much oxygen as during rest, and, since the circulation rate is at the same time very rapid, the muscles may consume from ten to sixteen times as much oxygen as during rest. . . .

"The increased supply of blood to the heart is brought about partly by the rise of arterial pressure and partly by dilatation of the coronary vessels, and it is inferred that these two factors normally ensure a sufficient coronary blood-flow to meet the needs of the heart for oxygen even during very heavy muscular work.

"Under the stress of violent emotion a man can often carry out muscular efforts of which he is normally incapable, and this not only involves greater muscular activity, but also places a greater strain on the circulatory and respiratory systems. The fuller mobilisation of the resources of the body under these conditions, is only possible if the greater muscular effort is accompanied by a corresponding increase in blood-supply to the muscles, heart, and brain, and in the efficiency of the circulatory and respiratory adjustments. This is effected mainly by a larger outflow of impulses from the higher centres, not only to the medullary centres but along a large part of the sympathetic system, thereby bringing about greater ventilation of the lungs, a rise of arterial pressure and acceleration of the pulse, and augmentation of the contractile power of the cardiac muscle. The question as to how far a more rapid discharge of adrenaline into the blood-stream occurs, and supplements the purely nervous factor, is discussed; and the conclusion is reached that the share taken by adrenaline in bringing about the circulatory and other changes taking place during exercise, even when this is carried out under emotional stress, is comparatively small.

"A man's maximum working power is determined, not only by the functional capacity of his skeletal muscles, but also by the supply of oxygen to the muscles, heart, and brain. In the last analysis it is dependent upon the extent of adaptations possible throughout the body as a whole.

"Regular and progressive exercise is the es-

sential feature of training, and the character of the diet, provided this is ample and is properly digested, is of subsidiary importance.

"Training develops not only the skeletal muscles, but also the heart, and, in a healthy man, the development of his heart corresponds with that of his muscular system. Owing to the increase in its contractile power, the output of the heart per beat is often larger, and the pulse-rate less frequent, in the trained, than in the untrained man, even during rest.

"When a trained and an untrained man take the same amount of exercise, the pulse is less frequent, the arterial pressure is usually lower, and the minute-volume of the heart is larger in the former than in the latter. These differences are related to the facts that the output of the heart per beat is larger, and the co-efficient coördination of movements, which is brought about by training, also improves the mechanical efficiency of the body. The effect of these changes is not only to increase a man's power, but also to enable him to carry out his work, whether heavy or light, with the greater economy of effort."

Bock concluded that exercise and other tests for cardiovascular fitness are really tests of general physical fitness, which of course is controlled by the state of the cardiovascular apparatus. The limits of normal in any of these tests are so wide that one must use much judgment in applying any tests of physical fitness. Moreover, it is well known that cardiovascular disease may exist (for example, slight rheumatic aortic regurgitation) with normal results from functional tests. Thus, passing a test of physical fitness means that at the time of the test the functional state of the circulatory apparatus is good, but it does not mean that the subject is normal or does not have organic heart disease.

FUNCTIONAL TESTS IN THE LIFE INSURANCE EXAMINATION*

BY HAROLD M. FROST, M.D.†

THE life insurance company of today is faced by the necessity of disposing of large numbers of applicants for insurance who give a history of, or present on examination, a variety of physical, in particular circulatory, impairments, such as overweight, goitre, heart murmurs of various types, rapid or irregular heart action, hypertrophy of the heart, and abnormal blood pressure. Experience has proved beyond question that impressions as to the significance of such impairments, derived from clinical sources, are trustworthy as a basis for life insurance.

By statistical analysis of large numbers of such impaired individuals, dividing them into groups, each group fairly homogeneous and characterized by a particular impairment, it has been possible to determine the group-mortality. If this is in excess of the standard, an adequate amount of extra premium may be imposed, permitting insurance upon a substandard basis. This confers upon the insuring company a necessary and a legitimate safeguard.

Each impaired individual, so insured, must be put in his proper group. The increased mortality of his group must be offset by an appropriate increase of his premium.

It is a fact, however, that in any substandard group there are some of the individual members who have a life expectancy compatible with standard insurance. The proportion of such will probably vary inversely to the severity of impairment, becoming greater in the lower substandard groups in which the mortality is but slightly in excess of the standard.

It is just, that these exceptional individuals should be able to obtain their life insurance at standard rates. Yet how may they be selected? Here is the crux of the problem; by hind-sight, easy; by fore-sight, very difficult.

The physical and circulatory impairments mentioned above present to life insurance companies the problem, in the main, of determining to what extent the circulation of individual applicants has actually been damaged. An applicant with a systolic heart murmur, localized at the apex, may be safely insured with an increased premium sufficient to offset a 50% increase of mortality, the mortality of the group to which he belongs. If there is in addition a history of rheumatism or chorea, he will fall into a substandard group with an extra mortality of 125 to 150%.

In such a substandard group as this, there will be a considerable proportion of individuals with a satisfactory life expectancy, insurable at standard rates, if they can be selected. The experience of life insurance companies over the past thirty years has proved that, based upon the results of ordinary clinical examination, no greater refinement can be expected in the selection of individuals with circulatory impairments. The only recourse, therefore, is in more refined methods of examination.

The electrocardiogram and the x-ray are gradually and deservedly acquiring a more prominent rôle among life insurance companies in the attempt to determine the extent of circulatory damage. Yet the procedure first adopted for this purpose and now most widely in vogue, is

*Summary of paper read at the sixth meeting of the Cardiac Course of the New England Heart Association, April 1, 1931.

†Frost—Medical Director, New England Mutual Life Insurance Company. For record and address of author see "This Week's Issue", page 971.

some sort of test designed to throw a load upon the circulation, in the hopeful expectation that the manner of reaction to this load may be observed and any impairment of circulatory function measured.

The major degrees of impaired circulatory function are not of concern. They are evident. They forbid life insurance. The minor degrees, not so evident, are important. These a satisfactory functional test must be able to detect.

Theoretically, actual damage to the circulation should be made manifest by some impairment of function, however slight. If by means of a functional test it were possible to determine at the time of examination that no actual damage to the circulatory mechanism had developed, in spite of murmurs or other abnormal signs, the advantage to life insurance companies would be tremendous, and a far greater refinement of selection would be possible. It is in the hope of such a development that so much attention is now being given to the matter of functional tests.

The simple exercise tests were the first to be adopted and are now in most common use. These include the bending and hopping exercises, walking over stairs, and repeated elevation of the body upon a step of a given height. In life insurance practice, the chief criterion of impaired function is a delayed return of the pulse rate to the pre-exercise level. There is no doubt that these tests give evidence of impaired function of moderate degree, whether due to disease, lack of exercise, excessive tobacco and coffee, or what not. They may indicate the degree of physical fitness, which after all is largely a matter of circulatory efficiency. I do not believe, however, that they offer a sufficiently delicate method of detecting the minor degrees of impaired function to make possible the refinement of selection previously mentioned.

Two other functional tests have been developed in life insurance medical circles, in the effort to overcome the apparent deficiencies of these exercise tests. Nine years ago, in the Medical Department of the New England Mutual Life Insurance Company of Boston, a test was developed which has been called "The Cardio-Respiratory Test". The basis of it is the observation of the fluctuation of systolic blood pressure and the variation of pulse rate as a result of alterations of intrathoracic pressure.

The technique of this test has been described in an article published in the *Boston Medical and Surgical Journal*, Vol. 191, No. 19, p. 853, under date of November 6, 1924*. It has been used by this Company continually for the last nine years, having been applied to over 10,000 life insurance applicants.

**Technique: Cardiorespiratory Test*

The apparatus for the cardiorespiratory test consists of a spirometer with a pressure gauge. The subject sits at the desk, the apparatus before him, with blood pressure cuff atached to the arm. The examiner first notes the systolic and diastolic pressures and pulse rate. In Step Two, the subject inhales as deeply as possible, maintaining complete inspiration by closing the glottis and allowing the chest to relax. The examiner notes the degree to which the systolic blood pressure falls. In Step Three, the subject exhales so far as possible, maintaining complete expiration by closing the glottis and allowing the chest to relax. The examiner notes the degree to which the systolic blood pressure rises. In Step Four, the subject blows against the gauge to a pressure of four cm., the examiner noting the degree to which the systolic blood pressure falls. In Steps Five, Six, Seven and Eight, which are identical, the subject blows through the spirometer at a constant pressure of two cm. to his full capacity. The examiner notes the fluctuation of systolic blood pressure, in particular the degree to which it rises at the end of the blow. As a final step, the examiner notes the systolic and diastolic pressures and pulse rate.

In the apparently normal individual, there is a very definite, typical reaction of systolic blood pressure to the changes in intrathoracic pressure brought about by the above manoeuvres. In the light of our experience, we believe that the normal fluctuation of systolic blood pressure should come within the following limits. In Steps Two and Four, the systolic pressure should fall at least ten mm. below the level existing before the steps were begun and may fall to approximately the diastolic level. In Step Three, the pressure should rise to a point not in excess of twenty points above what it was before the step was begun. In Steps Five to Eight, inclusive, the pressure should rise at the end of the blow at least twenty mm. above the level before the steps were begun, but not in excess of fifty mm. At the end of the test, the systolic blood pressure should not exceed the original level by more than ten mm. and should not have fallen more than five mm.

Some two years ago Dr. MacKenzie and his associates of the Medical Department of the Prudential Life Insurance Company of Newark developed the "Flarimeter Test". The main elements of this test are the effect of exercise upon the ability to hold the breath and the reaction of systolic blood pressure and pulse rate to exercise and to changes of intrathoracic pressure.

Insufficient time has elapsed to make clear the value of these various tests to life insurance companies. There is no doubt that as a result of them many individuals are being refused insurance because of an apparent impairment of circulatory function, whereas formerly they would have been accepted for standard insurance.

The only practical criterion of the success of a functional test, under the conditions prevailing in life insurance work, is the effect of the use of the test upon mortality. If it can be demonstrated that the mortality of a group presenting, for instance, a systolic heart murmur, localized at the apex, is definitely lower, when selected on the basis of a favorable reaction to a functional test, than the mortality of a similar group selected in the same manner except for the use of the functional test, it may be assumed that the functional test is a success, that it actually assists in the elimination of individuals with impaired circulatory function.

As previously indicated, life insurance companies have not been using functional tests long enough to have collected any conclusive evidence as to their effect upon mortality. The Medical Department of the New England Mutual Life Insurance Company for the last nine years has been giving this matter considerable attention, using its own Cardiorespiratory Test. Last Fall its experience with a group of 5,000 individuals, insured over the previous eight years on the basis of an acceptable reaction to this test, was

analyzed. In half of this group the major physical impairment was heart murmur; in the other half, hypertrophy, blood pressure higher than the average, rapid or intermittent heart action, goitre, or overweight was the chief trouble.

The mortality of the whole group was 42.32% of the American Experience Table. This is a table of mortality used in this State for computation of life insurance premiums, in which 100% represents the normal mortality. The mortality of all the individuals insured by the company over the same period of time was only a few points lower. There is no question that we have been able in this Company to select, over this period of time, with a lower mortality than ever before possible. The chief variation in the technique of selection has been the use of our functional test. Presumably this largely accounts for the mortality improvement. If so, we are satisfied that the test actually gives us a dependable measurement of the efficiency of the circulation at the time of examination and of the amount of damage which has resulted from any suspected circulatory disease. Obviously this would be of definite assistance in the determination of probable longevity. However, it will require another ten to fifteen years to arrive at a conclusive idea of the value of this test in life insurance medical selection.

From the foregoing remarks it is apparent that the medical departments of life insurance companies, while devoting considerable attention to the matter, have not as yet developed a functional test which has proved itself conclusively. Neither have their experiments with the various other exercise tests been productive of definite results. In spite of this, however, the attention of life insurance medical circles has been focused upon the problem of gauging the severity of various apparent circulatory impairments. In the course of time, from the very mass of material available, this is bound to be fruitful, not only for life insurance medicine, but also for clinical medicine.

CRITICISM OF COLLEGES FOR WOMEN STUDENTS

Dr. Barbara Beattie, who practices medicine in Littleton, New Hampshire, has made a study of the health of women students in colleges in the United States under a commission from *Good Housekeeping*.

She has made a report which has been published, in which she charges that of all the colleges inspected, only a few give the students a well-balanced diet or exercise supervision of health conditions. In one she found six cases of smallpox, in another an active case of tuberculosis.

She endorses the health program of the University of Michigan, the presence of a doctor on the board of admission of Vassar and the personal examination of applicants by Radcliffe.

In general Dr. Beattie feels that scholarship, and not health, is the characteristic aim of most colleges in the United States. She endorses the statement made by an obstetrician that colleges are turning out women physically unfit for motherhood.

No sooner had this attack on colleges for women been published than Smith College vigorously challenged the statements of Dr. Beattie. An official of Smith quoted the results of a survey by the United States Department of Agriculture which brought out that "food served in college dormitories and fraternity dining rooms is on the whole quite satisfactory and adequate," and equally vigorous denials by other officials of Smith College with quotation of facts and figures show that in this college the charges made by Dr. Beattie are unfounded.

ILLINOIS INFANT DEATH RATE 14 PER CENT. BELOW NATION

The infant mortality rate in Illinois is now 14 per cent. lower than that of the nation as a whole, it was announced today by the State Department of Public Health.

For the year 1930, it was reported, the death rate among infants was lower in only seven other States, none of which has half the population of this State.

For each 1,000 births in the United States in 1920, the announcement said, there were 86 deaths among infants. In 1930, this was reduced to 64, or 25 per cent. In Illinois, the infant deaths per 1,000 births in 1920 numbered 88 and this was reduced in 1930 to 56, a decline of 36 per cent.—*United States Daily.*

MORTALITY RATES

Telegraphic returns from 82 cities with a total population of thirty-six million for the week ending October 31, indicate a mortality rate of 10.9 as against a rate of 11.6 for the corresponding week of last year. The highest rate (18.8) appears for Paterson, N. J., and the lowest (4.1) for Flint, Mich. The highest infant mortality rate (11.9) appears for Nashville, Tenn., and the lowest for Knoxville, Tenn., Long Beach, Calif., Paterson, N. J., Providence, R. I., Somerville, Mass., Spokane, Wash., Tacoma, Wash., and Utica, N. Y., which reported no infant mortality.

The annual rate for 82 cities is 11.9 for the forty-four weeks of 1931, and the same rate appears for the corresponding weeks of 1930.—*Bureau of the Census.*

STATE-AIDED CANCER CLINICS AS SEEN BY THE PRACTICING PHYSICIAN*

BY HERBERT L. LOMBARD, M.D.,† AND ELEANOR J. MACDONALD, A.B.†

THE State-aided cancer clinics have been in operation in Massachusetts for nearly five years and it seems expedient that some estimate of their value to the community be made. Several methods of approach were available. One was an attempt to obtain the opinion of physicians in some of the clinic cities together with a control group of physicians from a non-clinic community.

The opinion of the practising physician is of great importance. Regardless of how effective a clinic may be set up, regardless of how smoothly this clinic may apparently run, if the physicians in the community do not feel that it is meeting a need in that community it is probably wrong. With this point in view an investigator questioned 107 of the 144 physicians in New Bedford, 100 of the 147 physicians in Lynn, 140 of the 262 physicians in Springfield, 100 of the 128 physicians in Lawrence (including Andover, North Andover, and Methuen), and fifty of the seventy-six physicians in Holyoke.

Cancer clinics have been maintained in Springfield since March 1927, in Lynn since April 1927, in New Bedford since March 1928, and in Lawrence since April 1928. There is no cancer clinic in Holyoke but as Holyoke is about nine miles from Springfield these physicians come in contact with the Springfield clinic. The accompanying table shows the opinion of the physicians in each community by percentage.

*Division of Adult Hygiene, Massachusetts Department of Public Health.

†Lombard—Director, Division of Adult Hygiene, Massachusetts Department of Public Health. Macdonald—Principal Statistician, Division of Adult Hygiene, State Department of Public Health. For records and addresses of authors see "This Week's Issue", page 971.

	New Bedford	Lynn	Lawrence	Springfield	Total in Clinic Cities	Non-Clinic City Holyoke
Number of physicians interviewed	107	100	100	140	447	50
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
1. What is your opinion of the State-aided cancer clinic?						
Good	72.0	56.0	63.0	64.3	64.0	
Not entirely satisfactory	18.7	32.0	27.0	21.4	24.4	
Harmful	8.4	9.0	10.0	11.4	9.8	
Indifferent	0.9	3.0	0.0	2.9	1.8	
2. What is the value to cancer patients attending clinic?						
Good	86.0	76.0	79.0	88.6	83.0	80.0
Of little value	6.5	16.0	12.0	7.1	10.1	20.0
Of no value	7.5	8.0	9.0	3.6	6.7	0.0
Indifferent	0.0	0.0	0.0	0.7	0.2	0.0
3. What is the value to non-cancer patients attending clinic?						
Valuable reassurance	59.8	59.0	52.0	55.7	56.7	32.0
Valuable reassurance and good advice	27.1	15.0	22.0	37.2	26.4	40.0
Of little value	10.3	14.0	22.0	0.7	10.7	24.0
Of no value	2.8	10.0	4.0	5.7	5.6	4.0
Indifferent	0.0	2.0	0.0	0.7	0.6	0.0
4. What is the value to cancer patients not attending clinic?						
Publicity is good	67.3	64.0	65.0	83.6	71.1	54.0
Publicity is of little or no value	30.9	27.0	35.0	12.1	25.1	46.0
Publicity is harmful	0.9	6.0	0.0	2.9	2.5	0.0
Indifferent	0.9	3.0	0.0	1.4	1.3	0.0
5. What is the value to the practising physician?						
(a) Do more patients come now than before?						
Yes	24.3	39.0	31.0	28.6	30.4	46.0
No	51.4	51.0	47.0	38.6	46.3	42.0
Did not answer	24.3	10.0	22.0	32.8	23.3	12.0
(b) Do cancer patients come earlier?						
Yes	54.2	54.0	48.0	52.8	52.3	46.0
No	26.2	29.0	34.0	23.6	27.8	46.0
Did not answer	19.6	17.0	18.0	23.6	19.9	8.0

	New Bedford	Lynn	Lawrence	Springfield	Total in Clinic Cities	Non-Clinic City Holyoke
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
(c) Do patients come to you referred by the clinic?						
Yes	10.3	35.0	13.0	12.1	17.0	
No	86.0	62.0	86.0	87.2	81.0	
Did not answer	3.7	3.0	1.0	0.7	2.0	
(d) Is there more or less cancer phobia?						
More	43.0	65.0	56.0	48.6	52.6	62.0
Same	3.7	18.0	3.0	2.1	6.3	4.0
Less	0.0	1.0	0.0	0.0	0.2	0.0
Interest, not phobia, on increase	51.4	13.0	41.0	47.9	39.4	34.0
Did not answer	1.9	3.0	0.0	1.4	1.6	0.0
(e) Would you utilize the clinic if there were one in Holyoke?						
Yes						42.0
No						50.0
Did not answer						8.0
6. Has the presence of a cancer clinic stimulated physicians to take a greater interest in cancer?						
Yes	31.8	42.0	44.0	32.9	37.1	68.0
No	64.5	50.0	54.0	66.4	59.5	32.0
Did not answer	3.7	8.0	2.0	0.7	3.4	0.0
7. Would you like to have a State-aided cancer clinic in Holyoke?						
Yes						48.0
No						52.0
8. What criticisms or suggestions have you to offer? *						
No suggestions	60.8	40.0	26.0	46.4	43.8	6.0
More social service	6.5	17.0	14.0	13.6	12.8	2.0
Professional jealousy a bar to successful operation	2.8	18.0	31.0	10.7	15.0	12.0
Control of quack situation	6.5	0.0	0.0	0.0	1.6	0.0
Should be another State cancer hospital	0.0	0.0	2.0	1.4	0.9	38.0
Changes in clinic management	1.8	35.0	12.0	23.6	18.3	24.0
Changes in clinic service	20.6	22.0	35.0	21.4	24.4	6.0
Substitute other measures for clinic	1.9	0.0	8.0	0.7	2.4	16.0

*Totals to more than 100 per cent. as some physicians offered more than one criticism or suggestion.

About two-thirds of the physicians in the clinic cities felt that the State-aided cancer clinics were good. About one-fourth of them felt that they were not entirely satisfactory and slightly under one-tenth felt that they were harmful.

In both the clinic and the non-clinic cities a large proportion of the physicians thought that the cancer clinics were of value to the cancer patients who attended them; and about an equal number felt that they were of value to the non-cancer patients who attended them as they furnished reassurance and advice.

In the clinic cities nearly three-fourths of the physicians who were interviewed believed that the publicity connected with the clinic was of value to the cancer patient who did not attend the clinic, while in the non-clinic city about one-half of the physicians were of this opinion.

Nearly one-third of the physicians in the clinic cities felt that more patients were coming to them at the present time than before the clinics were started; while in the non-clinic city this figure was nearly one-half. This is surprisingly small since our study[1] following a State-wide cancer campaign in 1928 indicated more patients going to private doctors in clinic cities than in non-clinic cities, and that for every one going to a clinic there were twenty-two going to a private office.

In response to the question, "Do cancer patients come earlier?" about one-half of the physicians in both the clinic and non-clinic cities felt that they did.

About one-sixth of the physicians in the clinic cities said that patients were referred to them by the clinics. This figure seems rather small as the policy of the cancer clinic is to refer back to their private physicians all cases who state that they have such physicians. In Lynn about one-third of the physicians answered in the affirmative to this question, while in the other

cities about one-eighth. Each clinic should make a study of their own situation to ascertain the reason for such a difference.

About one-half of the doctors in the clinic cities felt that there was more cancer phobia than prior to the establishment of clinics and about two-fifths believed that interest, not phobia, was on the increase. The figures from the non-clinic city do not differ greatly from these.

The Holyoke physicians were asked if they would utilize a clinic in the city if one existed and 42 per cent. answered "Yes", and 50 per cent. answered "No".

The physicians in the clinic cities were questioned as to whether the presence of a clinic stimulated physicians in their respective communities to take a greater interest in cancer. Thirty-seven per cent. felt that it did, while 59 per cent. felt that it did not. On the other hand, in the non-clinic city the theoretical opinion of the physicians as to whether a clinic stimulated interest was 68 per cent. in the affirmative and 32 per cent. in the negative. It is surprising that the physicians in the clinic cities felt that interest is not being aroused among the physicians. It is the feeling of the Department that a great deal of interest has been aroused and it seems hardly possible for a clinic to be functioning in a city without physicians feeling a desire to improve themselves in their cancer diagnoses.

About one-half of the Holyoke physicians desired a State-aided cancer clinic in that city.

Criticisms were asked for. In the clinic cities about two-fifths of the group offered no suggestions, while in the non-clinic city this figure was only 6 per cent. More social service was desired by about one-eighth of the group in the clinic cities. About one-fifth of the physicians in both the clinic and non-clinic cities felt that changes in the clinic management should be put into effect. Some of them wanted an outside specialist to conduct the clinic; others were in favor of an impartial rotating service; some desired local men to be in complete charge; while others wanted the State in complete charge. About one-fourth of the physicians in the clinic cities wanted changes in the type of service offered. The great majority of this group deplored clinic abuses. They felt that the policy of the clinics to admit all patients regardless of financial status was bad and they preferred that clinics should be maintained for the poor only. A small percentage wanted free education for all physicians and a few desired the abolishment of the clinic with a publicity program stressing the family physician and the local hospitals.

From this table we draw the conclusion that the cancer clinics in Massachusetts are satisfying about two-thirds of the physicians. With some changes a still larger percentage could probably be satisfied. We doubt the possibility or wisdom of satisfying the whole profession. This is impossible. What the maximum percentage should be is problematical, but the general impression is that the cancer clinic is working along the right lines but needs improvement. This improvement can be best accomplished by the whole-hearted support of the medical profession which the Department is constantly endeavoring to obtain.

Acknowledgment is made of the services of Miss Margaret M. Lanigan, who personally interviewed physicians.

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SPOROTRICHOSIS IN CONNECTICUT*

With Case Report

BY ELLWOOD C. WEISE, M.D.†

THE occurrence in Connecticut of a case of sporotrichosis is so rare that it seems quite worth while to briefly report it. On the other hand, cases of this type are of less interest in the West and Northwest, Mississippi and Missouri Valley regions, where they are more common. This disease, not being reportable in Connecticut, presented a problem of considerable difficulty so far as obtaining any definite data as to the frequency of its incidence. The State Board of Health was unable to give me any information along this line and consequently it was necessary to communicate with several clinicians and dermatologists in an effort to gain some inkling as to just how many cases have been recognized.

The results of these communications at first elicited the reports of only four cases as having occurred in this state. Further communications concerning these cases brought forth the information that in three of them a clinical diagnosis was made without resorting to laboratory methods. Two of these were recognized long ago when cultural methods were not readily available and the third had had previous treatment when first seen, which I presume, rendered culturing difficult. The fourth case was substantiated by culture and reported in the literature[1]. These were the only four cases of which I was able to find any record in this state until recently, when information was obtained indicating that other cases had been seen. Up to

*Read before the Connecticut State Medical Society, Bridgeport, Conn., May 21, 1931.

†Weise—Instructor in Dermatology, College of Physicians and Surgeons, Columbia University. For record and address of author see "This Week's Issue", page 971.

the date of this writing several attempts have been made without success to ascertain whether the diagnosis was simply a clinical one or whether it had been substantiated by cultural methods. No doubt there are occasional cases which pass unrecognized by the general practitioner. So far as I have been able to ascertain, there has been only one case in Connecticut, other than the one herein reported, which has been proved by positive culture.

Up to 1915 there were about eighty-two human cases compiled in the literature, fifty of which were substantiated by culture[2]. In 1917 the first case was recorded in New England and in 1922 the first case was reported in Connecticut. Up to the present date several hundred cases have been recorded in the literature.

In brief review of this mycosis it is to be recalled that the etiological factor is the sporothrix, several varieties of which have been described by various authors, such as the Sporotrichum beurmanni and S. schenkii, the former producing dark pigment and the latter, light pigment. S. dori, S. asteroides, S. indicum, S. councilmannii, etc., have also been described.

The organism is presumed to gain entrance by way of some wound, often on the finger, and frequently brought about by injury with sharp objects (grain stalks, splinters, thorns, most commonly the thorn of the barberry shrub). At the site of this puncture wound there develops a small papule or nodule. Occasionally this lesion as it continues to develop and ulcerate resembles to a certain extent the primary lesion of lues. Indeed it has often been called a sporotrichotic chancre. It is also possible that this primary wound may be of a superficial inflammatory character of relatively slight significance and may even clear up before the secondary manifestations occur. These manifest themselves after an interval up to three months as small firm nodules progressively appearing along the course of the lymphatics. The overlying skin grows reddened and violaceous as the nodule increases in size, becomes somewhat painful, and after some time, probably six or eight weeks or more, softens and breaks through the skin, discharging a yellowish or grayish-yellow pus. Involution may here take place or new fistulous openings might develop, presenting a sluggish, ulcerating appearance. These lesions may appear anywhere along the lymphatics and in the case herein reported extended from the finger to the axilla. The general condition of the patient remains unchanged. The disease, in addition to affecting the skin and lymphatics, has been reported in mucous membranes, in bone, in muscle tissue, in the eye, and in the testicle.

CASE REPORT

E. T. G., a well-nourished, apparently healthy, elderly retired white male, 72 years of age, appeared at the office October 10, 1930 and gave a history of having noticed in July, 1930 a small sore on the distal portion of the ring finger of his left hand. He stated that this looked and felt "as if he had a splinter in his finger". He added that he might have run a rose or raspberry thorn into his finger as he works in his garden quite frequently, but there was no definite history of this. The sore grew worse, increased in size, and "came to look like a run-around". He attempted to remove what he thought was a splinter with his jackknife on two different occasions without success. The finger became swollen. He then consulted a physician, who incised the lesion at the tip of the finger but obtained no free pus. The condition was treated with wet dressings and ointments with no improvement. Later nodules appeared on the back of the hand and extended up the forearm and arm. He was then referred by the first physician to a surgeon, who was of the opinion that the lesion was due to some indolent, low-grade infection, which might respond to radiotherapy. The surgeon immediately referred the patient to me, advising him that x-ray treatments might be of value.

FIG. 1. Appearance before treatment, showing lesions following course of lymphatic channels up forearm and spiralling about elbow toward under surface of arm.

Examination, October 10, 1930. On the tip of the ring finger of the left hand was a small papulo-pustule with erythema and scaling extending toward the nail, where the epithelium was somewhat denuded. The entire finger was markedly edematous and boggy with a few small discharging superficial ulcero-nodular lesions suggesting superficial sinuses, covered and surrounded by thin crusts and some scaling. This condition followed a line extending obliquely around the finger to the dorsum and extending up over the back of the hand, and from thence following the course of the lymphatic channels (see Fig. 1) up the forearm, it spiralled about the elbow, and following along the outer and under surface of the arm, terminated at the axilla. Corresponding to this course just outlined were seen round, reddened areas 1 or 2 cm. across, infiltrated, and the apices of which were either ulcerating or suggestive of sinus formation, from which could be expressed a grayish-yellow pus in rather scant amounts. Other lesions were more nodular in char-

acter, the overlying skin reddened and violaceous, and not particularly tender. Some of these nodular lesions could be felt as firm round bodies beneath the skin, where as yet the overlying structures had not become reddened. This was particularly true

FIG. 2. Appearance after treatment, showing relatively small smooth pliable reddened scars.

high up on the under surface of the arm. Still other lesions resembled sluggish subcutaneous abscesses, having not as yet broken through the overlying skin to discharge their contents. Temperature and pulse were normal.

A clinical diagnosis of sporotrichosis was made.

On this date cultures were made on Sabouraud's medium.

FIG. 3. Thorn of coniferous wood removed from site of original lesion.

The patient was immediately placed on increasing doses of sodium iodide, which were eventually increased up to approximately 200 grains per day, when the patient showed intolerance, evidenced by gastric disturbances. On these occasions iodides by mouth were omitted for a few days and an intramuscular preparation of iodine was administered. This was continued throughout, making certain that the patient was receiving some form of iodine therapy. At intervals of one week or more, various affected areas were selected and given fractional doses of unfiltered x-ray radiation. Within the first week there was a slight but definite lessening of the severity of most of the lesions present. Improvement continued throughout the course of treatment and at the end of four weeks, with the exception of two or three resistant lesions, he was practically well. These resistant lesions were given slightly heavier x-ray dosage at this time. One of these lesions happened to be at the site of his primary sore near the tip of the finger. Six weeks after treatment had been instituted he was essentially recovered. Pigmented somewhat brownish-red scars remained at the site of healed lesions. At the site of the primary lesion there was still a refractory small papulo-pustule, which the patient stated was somewhat painful. Upon close examination, in the center of this papule, a minute dark spot was seen. This had not been observed at any time prior to the present visit. It was grasped with a splinter forceps and an elongated object about 6 mm. in length was extracted, which closely resembled a barberry thorn (see Fig. 3). This prompted further search as to the possibility of the source of the infection being in the patient's garden. He was advised to bring in specimens of various shrubs from his garden, with the

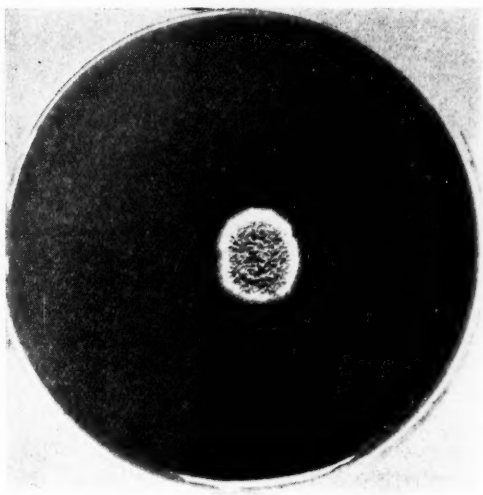

FIG. 4. Culture of Sporotrichum beurmanni two weeks old on Sabouraud's maltose.

thought that these might harbor the sporotrichum. He was last seen on December 29, 1930, simply for observation. There was no evidence of any nodules, sinuses, nor infiltrations. A few reddish-brown scars remained at the site of previously healed lesions. He was discharged as recovered on this date. A photograph made after recovery is shown in Fig. 2, which is well worth comparing with the photograph shown in Fig. 1, taken when the patient first applied for treatment.

THE CULTURE

The cultures made on Sabouraud's medium on October 10, 1930, proved to be positive. They were made from previously unopened lesions which were fluctuating.

C. W. Emmons, mycologist in the Department of Medical Mycology, Vanderbilt Clinic, College of Physicians and Surgeons, Columbia University, described the organism as follows:—The fungus isolated from the patient's lesions was typical of Sporotrichum beurmanni. On Sabouraud's maltose agar the col-

ony was at first smooth and gray. Within a few days the surface became very much wrinkled and folded, and a brown pigment developed. By the end of two weeks the colony was between 2-3 cm. in diameter (Fig. 4) with the central wrinkled area

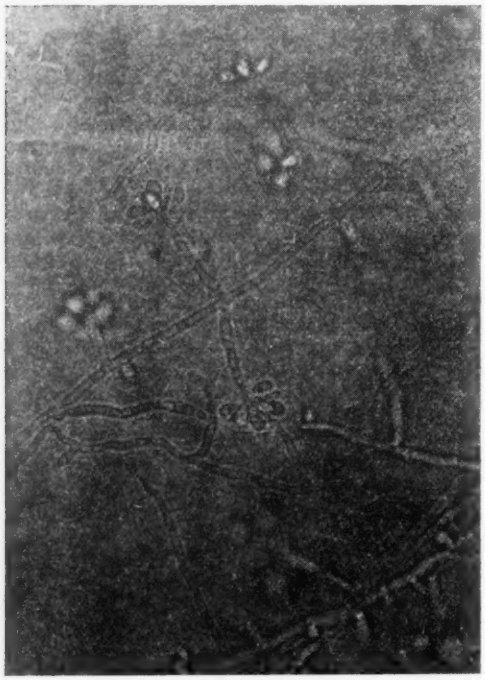

FIG. 5. Mycelium of Sporotrichum beurmanni with conidiophores and spores. The hyphae in the lower right hand corner show the tendency to form ropes of hyphae or coremia.

avellaneous to wood brown in color and with a smooth lighter colored border. The mycelium was composed of freely branching septate hyphae 1.5-2.5 microns in diameter. Under the microscope the spores appeared hyaline or very slightly colored. The density of coloration increased in older cultures. Spores arose from very short sterigmata and were borne either directly upon the mycelium or in clusters at the tips of tapering conidiophores, which were about 1.5 microns in diameter and 20-30 microns long (Fig. 5). The spores were oval to egg-shaped, 2-3 x 3-5 microns, with an apiculus at the point of attachment. Mature spores fell to the surface of the medium, where they germinated at once, increasing in size considerably during this process. Some of these budded in a yeast-like manner in old cultures; others gave rise to short, thick hyphae, which, in turn, bore other spores on sterigmata (Fig. 6).

Because the thorn-like object removed from the site of the primary lesion was at first thought to be a thorn of the barberry, specimens of various shrubs were obtained from the patient's garden. These included rose thorns, blackberry thorns, bark from trees, small sharp twigs from various shrubs, etc. No barberry shrubs were found in the patient's garden. These specimens were cultured and also washed with normal saline, the washings being used to inoculate rats. All these attempts failed to yield a growth of the sporotrichum and also failed to produce the disease in inoculated animals. Later it was discovered that the supposed barberry thorn was actually a splinter from some coniferous wood. Just when, or where, this splinter came from could not be found out, even after careful questioning of the patient. The source might have been quite remote from his own home or garden. Should this have been the case, it would account for our negative results to secure cultures from the specimens taken from his garden.

At this point I might add that specimens of the barberry shrub have been obtained from various sections of this state in an endeavor to find by culture and animal inoculation whether the sporotrichum can be found in nature, growing saprophytically on this type of shrub. Thus far results have been negative. In the laboratory the fungus can be transferred to the barberry. Foerster has reported a number of cases of Sporotrichosis, a large percentage of which were declared to have been caused through injuries by the barberry. At any rate it is important to bear sporotrichosis in mind when called in to care for an atypical infection in a gardener, a nurseryman, or anyone coming in contact with the shrub mentioned.

SUMMARY AND COMMENT

1. A case of sporotrichosis, proven by positive culture, was reported as occurring in Connecticut, where this disease is a clinical rarity.
2. The sporothrix isolated from previously unopened lesions was identified as the Sporotrichum beurmanni.
3. A splinter of some coniferous wood was removed from the site originally that of the primary lesion. It is inferred that the sporotrichum was introduced into the tissues of this patient by this splinter.
4. Attenton is again called to the fact that the primary lesion of this condition may at times

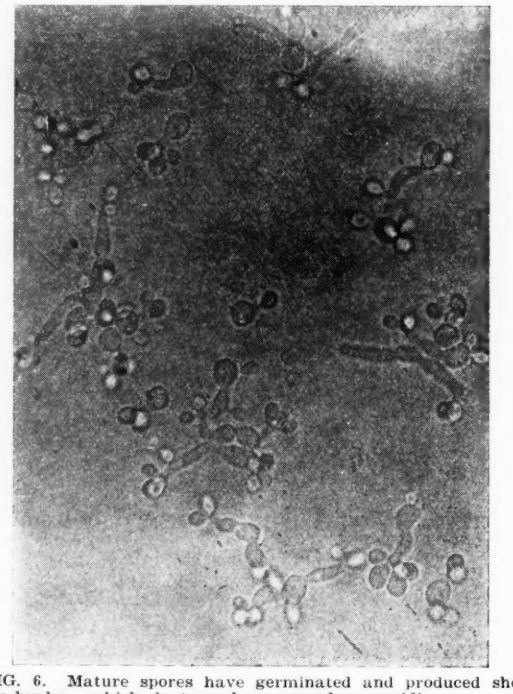

FIG. 6. Mature spores have germinated and produced short thick hyphae, which, in turn, bear secondary conidia.

resemble the primary lesion of syphilis. The ulcero-nodular or gummatous lesions may be similar to the skin gummata of syphilis, and even

certain types of cutaneous tuberculosis. Low-grade streptococcic lymphangitis may be imitated, and I know of one case of an ulcero-glandular type of tularemia seen recently, in which the diagnosis could have been confused with that of sporotrichosis.

5. The case herein reported responded quite promptly to iodides and unfiltered x-ray radiation.

It might be conjectured that, if the splinter mentioned above could have been discovered and removed earlier, the duration of the course of the disease could have been considerably shortened. This, however, is questionable. No doubt iodides alone would eventually have brought about complete recovery. The patient, however, was referred with the idea that he was to receive x-ray therapy and there is no doubt in my mind that the addition of this valuable type of treatment materially hastened his recovery. MacKee[3] states that J. B. Shelmire, of Dallas, and E. D. Crutchfield, of Galveston, have successfully treated sporotrichosis with x-rays without the use of iodides or other remedies, and that Lain obtained good results with a combination of the two. MacKee also suggests that better results might be secured with filtered radiation than with unfiltered.

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OPPORTUNITIES FOR IMPROVING THE HEALTH OF THE AGED IN THE ADMINISTRATION OF THE MASSACHUSETTS OLD AGE ASSISTANCE LAW*

BY CONSTANCE WILLIAMS†

THE Massachusetts legislature has passed a law providing "adequate assistance" and "suitable and dignified care" for certain of the state's aged citizens. Among the foremost responsibilities imposed by this law is that of supplying adequate care for the health of these aged people. This duty, however, is complicated by the fact that the meaning of "adequate" care of the health of aged people is undergoing a change in the minds of doctors and social workers. The idea that disease is the natural accompaniment of old age and may be more or less ignored is no longer held to be true by the best medical authorities.[1, 5] The more firmly it is believed that disease in old age may be lessened, or even cured by treatment, the less adequate appear to be our present facilities for caring for the health of the aged. Already private agencies are establishing new departments to deal with some of the newly recognized needs, such as clinics for certain chronic diseases and volunteer visitors to bring cheer to the aged. The legislature placed no limit on the interpretation of the word "adequate" which the Department of Public Welfare may use in administering the old age assistance, and this department has, therefore, the power to become a leader in the movement for improving the health of the aged. Mr. Richard K. Conant, Commissioner of the Department of Public Welfare, says that his department recognizes this opportunity and accepts the challenge it offers. It will, nevertheless, probably be many years before the health needs of the aged, a few of which are described in this paper, will be adequately met.

*A study submitted in partial fulfillment of the requirements for the degree of Master of Science in Research, Simmons College, June, 1931. The Massachusetts Old Age Assistance Law went into effect July 1, 1931, but no attempt has been made to verify the points discussed.

†Williams — Research Assistant, American Association for Labor Legislation, New York. For record and address of author see "This Week's Issue", page 971.

GROUP OF AGED PEOPLE STUDIED

As a means of investigating some of the health needs of the aged that will be met in administering the Old Age Assistance Law, a group of 228 persons, seventy years of age and over, were interviewed in their homes. Written forms were filled for each person visited, stating his physical condition and describing his living quarters. The group was obtained by random selection of about one-fifth of the total persons, seventy years of age and over, who are now receiving assistance from the Boston Overseers of Public Welfare. Most of the persons in the group were aided by outdoor relief, and their needs are similar to the needs of all other aged persons who will apply for outdoor assistance under the law. There are, however, two outstanding facts that should be remembered in comparing the needs of these people with those of other aged people in the state. The aged men and women visited live in a city and have certain advantages and disadvantages that are connected with city life. Secondly, they receive their chief support from public sources.

Commissioner Conant has estimated that there will be about eight thousand eligible persons apply for assistance under the law.[4] According to the figures given by the Massachusetts Commission on Old Age Pensions, there were in 1924 about 2,700 eligible persons who were receiving public or private outdoor relief.[19] If, as the Commission states, the rate of increase for the aged population is one and a half per cent. per annum,[19] the number of persons al-

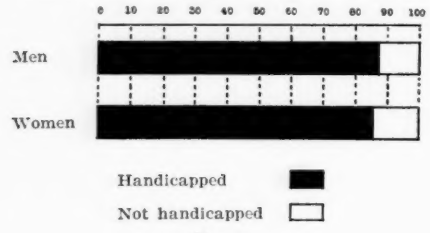
ready receiving outdoor relief who will be eligible for assistance in 1931 will be about 3,000. By a similar process of calculation it may also be estimated that there will probably be about 2,000 aged persons who are living in homes for the aged or in hospitals for incurables who will apply for assistance in 1931. The needs of this group of people, however, differ from the needs of the aged people discussed in this paper. The remaining group of 3,000 persons who will apply for assistance are those who are now independent of any public or private aid.

HANDICAPS OF THE AGED

Six out of every seven of the 228 persons visited complained of some physical or mental handicap. (Chart I.) With the exception of the complaints of old age, fractures, and artificial limbs, which were 17 per cent. of the total reported, every handicap was a chronic disease.*[1,17] Almost two out of every seven persons reported two or more handicaps. (Table 1.) Diseases of the bones and joints, which were chiefly rheumatism and arthritis, were by far the most common complaints. A third of those who reported handicaps suffered from rheumatism, arthritis, or some similar disease. Nearly one in every seven of those reporting a handicap complained of some form of heart trouble. Diseases of the nervous system and special sense organs represented the largest general group of ailments. One in every six persons afflicted with a handicap reported eye trouble and one in every thirteen ear trouble. (Table 2.) Eight of the 228 persons were bedridden, four more were unable to walk alone, and fourteen persons were reported unable to go out alone.

CHART I

PERCENTAGES OF AGED MEN AND WOMEN REPORTING HANDICAPS—BOSTON OVERSEERS, 1930



DATA

	Total		Handicapped		Not handicapped	
	Number	Per cent.	Number	Per cent.	Number	Per cent.
Total	228	100.0	197	86.4	31	13.6
Men	72	100.0	63	87.5	9	12.5
Women	156	100.0	134	85.9	22	14.1

*Diseases have been classed as chronic if they qualify by either the definitions given by Dr. Ernst Boas or by the Boston Council of Social Agencies.

TABLE 1

PER CAPITA NUMBER OF HANDICAPS REPORTED BY AGED CLIENTS OF BOSTON OVERSEERS, 1930

Number of handicaps	Aged persons reporting specified number of handicaps: Both sexes		Men		Women	
	Number	Per cent.	Number	Per cent.	Number	Per cent.
Total persons	197*	100.0	63	100.0	134	100.0
One	128	65.0	39	61.9	89	66.4
Two	60	30.5	22	34.9	38	28.4
Three	8	4.1	2	3.2	6	4.5
Four	1	.5	—	—	1	.8

*In addition there were 31 persons (9 men and 22 women) who reported no handicap.

The results of two other studies of groups similar to that upon which these proportions are based may be compared profitably with the figures just given. Miss Sarah Ginsberg studied 273 persons, sixty years of age and over, who were taken from a random selection of 1000 cases cared for by the Boston Overseers of Public Welfare, from 1921 to 1927 inclusive. She states that "physical handicaps, including sickness, both chronic and acute, accident and blindness, were associated with the dependency of four out of every five of the aged persons."[18] The proportion of aged persons who reported handicaps found by Miss Ginsberg is less than the proportion reported in this study for two outstanding reasons: In Miss Ginsberg's study the lower age limit was sixty while in this it was seventy and it is commonly known that physical conditions become poorer as people grow old; in the second place, Miss Ginsberg includes only those handicaps which contributed either primarily or secondarily to the dependency of the aged person, and in this study every handicap has been reported. The most prevalent handicaps found by Miss Ginsberg were diseases of the circulatory system and special sense organs, arthritis and rheumatism. These diseases are the same as those reported in this study although they have slightly different relative importance.

The second study with which a comparison may be made was the work of Miss Katherine Brown Hardwick. Her figures were based on 892 case records of persons, sixty-five years of age and over, obtained from leading private charitable organizations of Boston. Miss Hardwick states that of these aged clients, seven-eighths reported in regard to their health, and of those who did report all had one handicap, one-half had two handicaps, and almost one-sixth had three or more handicaps.[2] These proportions indicate a poorer state of health in the cases studied by Miss Hardwick than is shown in the group of 228 visited for this study. Since the lower age limit was sixty-five, it might be expected that, as in Miss Ginsberg's study, the health would be better for Miss Hardwick's group than for that of the present study. It

TABLE 2

HANDICAPS REPORTED BY AGED CLIENTS OF BOSTON OVERSEERS, 1930

Kind of handicap	Handicaps reported by aged persons: Number			Per cent.			Percentages of persons reporting each handicap:		
	Both sexes	Men	Women	Both sexes	Men	Women	Both sexes	Men	Women
Total handicaps reported	276[1]	89	187	100.0	100.0	100.0	[2]	[2]	[2]
General diseases:									
Tuberculosis	3	1	2	1.1	1.1	1.1	1.5	1.6	1.5
Cancer	3	1	2	1.1	1.1	1.1	1.5	1.6	1.5
Diabetes	5	1	4	1.8	1.1	2.1	2.5	1.6	3.0
Diseases of the nervous system and special sense organs:									
Diseases of the spinal cord	1	—	1	.4	—	.5	.5	—	.7
Cerebral hemorrhage and shock	4	3	1	1.4	3.4	.5	2.0	4.8	.7
Other paralysis	5	2	3	1.8	2.2	1.6	2.5	3.2	2.2
Dizziness	6	2	4	2.2	2.2	2.1	3.0	3.2	3.0
Other diseases of the nervous system	5	3	2	1.8	3.4	1.1	2.5	4.8	1.5
Diseases of the eye	32	10	22	11.6	11.2	11.8	16.2	15.9	16.4
Diseases of the ear	15	7	8	5.4	7.9	4.2	7.6	11.1	6.0
Diseases of the circulatory and respiratory systems:									
Diseases of the heart	27	9	18	9.8	10.1	9.6	13.7	14.3	13.4
Arteriosclerosis	3	1	2	1.1	1.1	1.1	1.5	1.6	1.5
Other diseases of circulatory system	5	1	4	1.8	1.1	2.1	2.5	1.6	3.0
Chronic bronchitis	6	2	4	2.2	2.2	2.1	3.0	3.2	3.0
Asthma	10	3	7	3.6	3.4	3.7	5.1	4.8	5.2
Diseases of the digestive system:									
Hernia of intestinal obstruction and rupture	5	4	1	1.8	4.5	.5	2.5	6.3	.7
Cirrhosis and other liver diseases	1	—	1	.4	—	.5	.5	—	.7
Other digestive diseases	8	2	6	2.9	2.2	3.2	4.1	3.2	4.5
Diseases of the skin and cellular tissue	3	2	1	1.1	2.2	.5	1.5	3.2	.7
Diseases of bones and organs of locomotion	73	22	51	26.5	24.7	27.3	37.1	34.9	38.1
Congenital malformations	1	—	1	.4	—	.5	.5	—	.7
Mental diseases	9	1	8	3.3	1.1	4.3	4.6	1.6	6.0
Old age	35	9	26	12.7	10.1	13.9	17.8	14.3	19.4
Handicaps from external causes:									
Fractures	9	3	6	3.3	3.4	3.2	4.6	4.8	4.5
Artificial limbs	2	—	2	.7	—	1.1	1.0	—	1.5

[1]In addition there were 31 persons (9 men and 22 women) who reported no handicaps.

[2]These percentages were computed with the number of persons reporting handicaps used as a base. One hundred and ninety-seven was the base used in the column giving percentages for both sexes, 63 for men, and 134 for women. Since many persons reported more than one handicap, the sum of the percentages in each column is greater than 100.

is important to remember, however, that most of Miss Hardwick's cases were assisted by private charity. Persons in need of special care are commonly referred to private agencies which are equipped to give better case work and more intensive supervision than the city. Thus it appears that a greater proportion of illness exists in a group of privately aided clients than in one whose aid is chiefly from public sources. This fact must be taken into account by the state in planning to assume the responsibility of caring for those aged persons who have heretofore been supported by private charities. The chief handicaps reported in Miss Hardwick's study were, in order of their frequency, diseases of the nervous system, ear and eye trouble, diseases of the blood, bones and joints, general feebleness, and diseases of the heart and arteries.[2]

In addition to studying the handicaps of these aged clients of private charitable agencies, Miss Hardwick compared their physical and mental condition with that of another group of persons, sixty-five years of age and over, who were not dependent upon charity for support. She found a decidedly lower proportion of handicaps among the group of independent people. She said that none of the aged dependents who gave information was without some mental or physical handicap, and over one-fourth of the aged independent persons who reported said they were in fine health and had no ailments.[2] If

we accept Miss Hardwick's work, we may conclude that the independent aged who apply for assistance will need less medical care than the people now supported by charity. The diseases reported for the independent men and women are very similar to the lists already given for the dependent. In order of their frequency they are diseases of the ear and eye, diseases of the nervous system and diseases of the heart and arteries.[2]

which supplied treatments to these aged people. The group studied by Miss Hardwick, most of whom were supported by private charity, were cared for by 31 different medical agencies. Although a greater number of medical agencies does not necessarily mean more or better care, nevertheless this situation seems to confirm the fact already noted, namely, that persons supported by private agencies need more medical care than the clients of public agencies.

TABLE 3

MEDICAL CARE RECEIVED BY 55 AGED CLIENTS OF BOSTON OVERSEERS DURING THE YEAR PRECEDING DECEMBER 1, 1930, DISTRIBUTED BY THE AGENCY GIVING CARE AND THE DISEASE

Handicap treated	Number of specified handicaps of aged persons treated by agencies named below:								
	Total	Boston City Hospital House	Boston City Hospital Outpatient Department	Massachusetts General Hospital Outpatient Department	Other Hospitals	Boston Dispensary	District Nurse and Other Nurses	Nursing Home	Doctor in Home
Total handicaps	66	15	6	2	5	5	6	6	21
Cancer	2	—	1	—	—	—	—	1	—
Diabetes	2	—	—	—	1	1	—	—	—
Shock and other paralysis	6	2	—	—	—	1	1	—	2
Other diseases of nervous system	2	—	—	1	—	1	—	—	—
Diseases of eye	4	1	—	—	1	—	2	—	—
Heart diseases	6	3	3	—	—	—	—	—	—
Other diseases of the circulatory system	10	3	—	—	1	1	2	—	3
Bronchitis	3	—	—	—	—	—	—	—	3
Asthma	3	—	—	—	1	—	—	—	2
Hernia and rupture	2	1	—	—	—	—	—	—	1
Diseases of skin and cellular tissue	2	—	1	—	—	—	—	—	1
Diseases of bones and organs of locomotion	10	2	1	1	—	—	—	—	6
Congenital malformations	1	—	—	—	—	—	1	—	—
Old age	6	—	—	—	—	—	—	4	2
Handicaps from external causes	2	1	—	—	—	—	—	1	—
Not stated	5	2	—	—	1	1	—	—	1
Total persons aided by each agency[1]	58	14	5	2	4	5	5	6	17
Double counting	8	1	1	—	1	—	1	—	4

[1]One person received care from two agencies, and one from three agencies, so that the total persons who received medical care is 55. The person receiving care from two agencies suffered with shock, and the person aided by three agencies, with arteriosclerosis, a disease grouped with "other diseases of the circulatory system".

MEDICAL CARE RECEIVED DURING THE PAST YEAR BY THE AGED PEOPLE STUDIED

Fifty-five of the 228 persons visited, or about one in every four, received some sort of medical care from outside their homes during the year preceding the day on which they were visited. (Table 3.) The Boston City Hospital cared for 25 per cent. of them and the Out Patient Department of the City Hospital cared for another 9 per cent. Doctors' calls at the homes represented 30 per cent. of the care given. Nursing homes, the Boston Dispensary and the Community Health rank next in order of importance. Excluding doctors who gave their help, there were ten different medical agencies

Rheumatism and arthritis and diseases of the circulatory system other than heart diseases each represented 16.4 per cent. of the diseases that received medical care, and shock, heart diseases and general feebleness each contributed 9.8 per cent. Although rheumatism and arthritis are outstanding among the diagnoses of the aged patients, only 17.8 per cent. of those handicapped by these diseases received medical care. The proportions of some of the other diseases which were treated were as follows: cancer, 66.6 per cent.; diabetes, 40 per cent.; heart diseases, 22.2 per cent.; diseases of the circulatory system other than heart diseases, 100 per cent. Of the eight persons who were bedridden, only two were receiving regular nursing care in a nurs-

ing home, five received nursing care from a district nurse, and one had no outside medical care.

NEED OF CLINICS FOR THE AGED

One-fourth of a group of people receiving medical aid does not seem a large proportion when it is remembered that seven-eights of the group were suffering from some definite physical or mental handicap. The need of greater hospital facilities for chronically ill people has been recognized by case work agencies and has aroused considerable general interest.[17] The methods of a hospital, however, are not suited to the majority of people who were visited in this study. The law expressly states "that the assistance shall, wherever practicable, be given to the aged person in his own home or in lodgings or in a boarding home." Many medical and social authorities have recommended the establishment of clinics for the study of senile diseases. Such clinics would contribute much information supplementary to studies of these diseases made in hospitals. Among those who have anticipated the need of clinics is Mr. Richard K. Conant, Commissioner of Public Welfare, under whose department the law is to be administered. He says, "Medical social service for children has been highly developed, with extensive resources, public and private, by way of medical clinics. No such program has been developed for aged people, and yet it is one of the first essentials in a plan like this which contemplates the care of aged people outside of institutions. . . . We look forward to the time when we shall have state-wide systems of clinics for arthritis, heart disease, and other chronic diseases, such as exist to a limited extent at Boston hospitals."[4]

The need of studying the chronic diseases of aged people is emphasized by the increasing rates of mortality from these diseases and by the decreasing success of efforts made to control them solely by means of improving environment. "Seventy years ago the so-called chronic and degenerative diseases caused about one-fifteenth of the total number of deaths; today they are responsible for one-half of all deaths."[16] Raymond Pearl states that the diseases that cause the greatest number of deaths in the age period 65 to 74 are the diseases which caused higher rates of mortality in 1920 than in 1910. He adds that these diseases are chiefly those in which the "biological constitution of the individual" is an outstanding factor. On the other hand, those diseases which cause a smaller proportion of deaths in the age period 65 to 74 caused lower rates of mortality in 1920 than in 1910, and are chiefly the diseases which may be overcome by improving the environment.[14] In other words the most important diseases of old age are no longer to be checked merely by cleaning up the community; they must be studied in their development in individuals.

If public clinics were established for the study of senile diseases, they would be used by many more people than those who will apply for old age assistance under the law. Many others who may not actually use the clinics will profit by the results of their research work. According to Dr. George H. Bigelow and Dr. Herbert L. Lombard, there are "at any one time approximately 145,000 individuals in Massachusetts suffering with rheumatism; 89,000 with heart disease; 56,000 with arteriosclerosis; 31,000 with nephritis; and 10,000 with cancer."[8]

NEED OF STUDYING THE PERSONAL HYGIENE OF THE AGED

Not only are clinics needed for studying the chronic diseases of the aged, but also for studying the care of healthy aged people who have no definite complaints and for teaching these people how to avoid illness. The importance of even such a common factor as cleanliness in maintaining health appeared to be unknown to many of the people visited. Though it would be difficult to persuade many of them to take daily baths, some of them might be greatly benefited by a little encouragement in cleanly habits. The problem of diet is another on which the old people visited seemed to be ignorant. Information as to what is a proper menu for an old person is, however, scarce, and clinics which have acquainted themselves with the diet of numerous healthy old people would be better able to give advice in this regard than can now be offered by any agency. Very little is now known concerning the sleep and exercise required by the aged. Dr. Malford W. Thewlis, who is one of the few recognized specialists in geriatrics in the country, believes in exercise for the aged.[6] He also says that old people do not need so much sleep as younger persons and particularly warns against the habit of sleeping in the day for those who do not sleep well at night.[6] His conclusions, however, need to be investigated further before they may be accepted.

One of the greatest fears of the 228 people visited was that of not having the coal they needed to keep warm when the cold weather began, and a few complained that they did not have enough fuel to keep them warm even in November. It has been shown that the greatest number of deaths in persons past sixty occur in the colder months of December, January, and February. Perhaps clinics could help to emphasize the close relationship between cold and illness and death, and influence the state in administering the old age assistance act to pay even more attention than it does at present to the problem of keeping these old people warm.

NEED OF STUDYING THE PSYCHOSES OF THE AGED

Understanding the psychoses of the aged is important for all people dealing with them, but, as in the other fields of work relating to their health, very little special study has been devoted to the subject. A clinic could serve as a nucleus for this sort of study as well as for the various other types already mentioned. Dr. Menas S. Gregory is one of the exceptions to the general medical practice in that he has attempted to study the mental diseases of the aged. He says, "little can be expected in the curative way from treating mental diseases of the aged, but it is definitely possible to ameliorate the symptoms or retard their progress."[12] It is of interest to note that he adds, "This is done chiefly through keeping the physical condition at the highest level."[12] Once a person has become subject to a mental disease, he may need to have a protector in his household to see that he is not exploited or he may need a legal defender. A social worker is most likely to be called upon to fill this rôle, but he cannot fill it capably unless he fully understands the mental defects of the aged person.

Nine of the 228 persons visited were reported to be psychopathic, and in need of special care. Some of these cases were described as follows:

(1) Fanatic, obsessed with the idea of Americanism; detests foreigners; says she is a student of the Cosmic unfolding, physical health good.

(2) Harbors many prejudices, perhaps has obsession of persecutions; visitor could get little information; fairly well physically.

(3) Rather psychic; seems a little unbalanced; very earnest, but tells improbable tales, communes with spirits.

(4) Room full of old things she had collected; says she's going to mend them; does not keep things clean; garrulous; well physically.

(5) Mental persecution complex; well physically.

NEED OF MORE NURSING IN HOMES

Of the 228 persons visited, one in every ten appeared to be seriously in need of more nursing care. Community nursing should, of course, be carried out in close coöperation with clinic work. One service would help gain confidence from the old people for the other. Mr. Richard K. Conant says, "The district nursing system will be of far-reaching importance in this work (administering the old age assistance). To quote his figures, there are now in Massachusetts over 730 district and public health nurses to assist in the medical side of the problem.[4] Dr. Bigelow and Dr. Lombard state that "the visiting nursing service throughout the state is doing admirable work, but that its efficiency would be increased if more funds were available."[8] Although only one in every ten of the old people visited appeared to be seriously in need of more nursing care, almost every old person would benefit by some nursing, such as massage, or assistance in bathing.

One of the people visited, who seemed most in need of additional care, was an old bedridden man who was receiving no outside medical help. He and his wife lived in two rooms on the first floor of a tenement. The man had a broken hip received in a fall and complained of his knees also. He had been confined to his bed for seven years. His wife could speak no English and it was difficult to judge her intelligence, but she appeared childish in her manner of puttering about. There was only one double bed in the bedroom where the old man lies all the time, and which he undoubtedly shares with his wife at night. There were no sheets on the bed and the covers were torn and dirty. The room was stuffy, as the windows were closed, and the tables and chairs of the room were piled with old rags and soiled bedcovers. A daily visit from a nurse who could clean things up a little and occasionally help to bathe the old man seems essential for adequate care.

NEED OF BETTER HOUSING FOR THE AGED

Better housing is one of the outstanding needs of the aged men and women of Boston. Some of the old people were found living in houses with rotting or broken stairs. Many of the rooms had no sunlight. One old man was living in a small room whose only window opened on to an inside, narrow shaft which could give him very little light or air as there were three other windows opening on to the shaft above his.

An especially deplorable condition was the number of stairs these old people had to climb to reach their rooms. Those visited were classified according to the floor on which they were living and a special tabulation made for those who were suffering from diseases harmfully affected by climbing stairs, namely, rheumatism, arthritis, heart trouble, and asthma. Of the total 228 persons, 38.6 per cent. were living on the third floor or above (Table 4), while, strangely enough, the corresponding per cent. for those who were suffering from diseases harmfully affected by climbing stairs was higher (Table 5). Forty-six and five-tenths per cent. of those suffering from arthritis or rheumatism, and 44.6 per cent. of those having some form of heart trouble, were living on the third floor or above. Of the ten persons who complained of asthma, three were living on the third floor or above. Of course, not every one of these persons needs to be moved to a lower floor, but

there are many whose sufferings are definitely aggravated by the location of their homes. In fact, the question may be asked whether perhaps the position of the rooms may not have helped to bring on these particular diseases.

TABLE 4

POSITION OF ROOMS OF AGED CLIENTS OF BOSTON OVERSEERS, 1930

Position of room	Number of aged clients living in rooms located as specified: Total			Men			Women			Per cent. of aged clients living in rooms located as specified: Total			Men			Women		
	Total	Living alone	Living with others	Total	Living alone	Living with others	Total	Living alone	Living with others	Total	Living alone	Living with others	Total	Living alone	Living with others	Total	Living alone	Living with others
Total	228	115	113	72	28	44	156	87	69	100.0	50.4	49.6	100.0	38.9	61.1	100.0	55.8	44.2
Single house	5	2	3	—	—	—	5	2	3	2.2	.9	1.3	—	—	—	3.2	1.3	1.9
Basement	8	4	4	2	1	1	6	3	3	3.5	1.8	1.8	2.8	1.4	1.4	3.8	1.9	1.9
First floor	71	25	46	22	5	17	49	20	29	31.1	11.0	20.2	30.6	6.9	23.6	31.4	12.8	18.6
Second floor	56	34	22	20	9	11	36	25	11	24.6	14.9	9.6	27.8	12.5	15.3	23.1	16.0	7.1
Third floor	75	39	36	23	8	15	52	31	21	32.9	17.1	15.8	31.9	11.1	20.8	33.3	19.9	13.5
Fourth floor	7	5	2	2	2	—	5	3	2	3.1	2.2	.9	2.8	2.8	—	3.2	1.9	1.3
Attic	6	6	—	3	3	—	3	3	—	2.6	2.6	—	4.2	4.2	—	1.9	1.9	—

The positions of the rooms occupied by persons who lived alone were also specially studied. Forty-three and five-tenths per cent. of these solitary old people were found living on the third floor or above. This figure, like the figures given for the people suffering from diseases harmfully affected by climbing stairs, is considerably higher than the average figure of 38.6 per cent.

There seem to be two reasons why the position of the rooms has not been changed where it would improve the health of the aged person. The first is the additional cost of first or second floor rooms, and the second is the lack of help given the aged in finding suitable rooms or in moving into new rooms when found. The responsibility of financing first and second-floor rooms, where they are desirable, and of helping old people to move, when it is necessary, falls on those who will administer the law. Will they consider such changes to be included in the terms "adequate care"?

One of the people who was most in need of being moved was Mrs. W. She was a refined widow, seventy-two years old, who lived with her sister, a widow of sixty-two years of age. Neither of the sisters was able to get up or downstairs and yet they were living on the third floor of a three-family house. Their food was brought to them by a little girl who came in each day after school. Mrs. W. was very lame, but was able to get about by holding on to the furniture. Her sister had recently returned

TABLE 5

POSITION OF ROOMS OF AGED CLIENTS OF BOSTON OVERSEERS WHO ARE SUFFERING FROM DISEASES HARMFULLY AFFECTED BY CLIMBING STAIRS, 1930

Position of rooms	Number of aged persons suffering from diseases harmfully affected by climbing stairs who live in rooms located as specified: Persons suffering with asthma			Persons suffering with heart trouble			Persons suffering with diseases of bones and organs of locomotion		
	Total	Living alone	Living with others	Total	Living alone	Living with others	Total	Living alone	Living with others
Total,	10	6	4	27	14	13	73	41	32
Single house	1	—	1	—	—	—	3	—	3
Basement	1	—	1	—	—	—	3	3	—
First floor	3	2	1	11	4	7	13	4	9
Second floor	3	3	—	9	6	3	20	11	9
Third floor	2	1	1	6	3	3	29	20	9
Fourth floor	—	—	—	—	—	—	2	1	1
Attic	—	—	—	1	1	—	3	2	1

from the hospital, and was hardly able to get from her bed to a chair by the window where she sat all day. It was no wonder that the greatest fear of these sisters was fire, for the house was old and of wood, and they did not know the people who lived below them. They talked longingly of the days when they lived in some first-floor rooms and could go out and sit on the back stoop.

NEED OF CHEER FOR THE AGED

Over half of the persons visited were found to be living alone, 38.95 of the men and 55.8 per cent. of the women. (Table 4.) Eight persons were reported living alone who were unable to go out alone. One of these eight was living on the first floor, six on the second, and one on the third. All of them have to depend on the occasional visits of friends or relatives, or in the case of one old lady, the telephone, to bring them their food and to keep them in touch with the outside world. The fear that if something should happen to them, no one would know, increases the loneliness of this group of old people. It is, of course, commonly recognized that loneliness and depression often are closely associated with physical and mental disease.

The loneliness of old people may be greatly lessened by friendly visits, and at the special holidays of the year, Christmas, Thanksgiving, and Easter, little gifts add much to their happiness. Sometimes a visitor can interest the other members of the household in the old person, or stimulate some of the neighbors to be more sympathetic. It is the primary purpose of the Fruit and Flower Mission of Boston to give "cheer" to people of all ages. This work could well be enlarged, perhaps by the use of volunteer visitors, and special emphasis be put on visiting the aged.

NEED OF SUPPLYING OCCUPATION AND RECREATION FOR THE AGED

Many of the old people visited were greatly depressed because they could no longer be of use in the world. Those who have been better off in former days were particularly discouraged by the fact that they were unable to maintain their independence. One old lady told of her daily struggle to sell pins on the street because she did not want to become dependent on charity. An old man said sadly that he could do almost anything except lift heavy weights, but that he couldn't get steady work anywhere even as a night watchman.

Those old people who are able to continue to work would greatly appreciate special departments for the aged in factories and shops. Among other factories the Packard Motor Corporation has already evolved what is believed to be, after four years' trial, a workable plan for caring for the declining years of its employees.[13] When a man is no longer able to keep up with the standard speed, he is transferred to a special department. The work required from him there is established according to his ability, and the difference between what the man actually earns and his former pay is made up from a special fund. Massachusetts might add to the welfare of some of her aged citizens by encouraging more of such departments, perhaps by offering financial compensation to the concerns which established them.

There are, however, many old people who are really too feeble or sick to work and yet who would benefit from having other things to think about than their ills. For these people some form of occupational therapy would be valuable. Will the state in granting old age assistance allow for this as a necessary part of an old person's budget?

ECONOMIC EFFECT OF PROVIDING ADEQUATE CARE FOR THE HEALTH OF THE AGED

The provision of adequate care for the health of the aged may justify itself for economic as well as humanitarian reasons. Poor health has many times been shown to be largely responsible for dependency. Were the state to improve its facilities for caring for the health of its aged, it would enable some people to postpone the day when they must become totally dependent, by keeping them able to help support themselves a little longer. Other people who are ill may be kept in sufficiently good health so that they do not need to go to hospitals. The economic savings thus resulting will probably not, however, become apparent in financial reports, for they will be overbalanced by what it is hoped will be an increasingly generous policy on the part of the state in caring for the health of its aged people.

CONCLUSIONS

The problem of determining what is adequate care of the health of aged people is one of the most difficult questions that the Massachusetts Department of Public Welfare must meet in the administration of the Old Age Assistance Law. The poor health of aged people has long been recognized, but the fact that anything could be done for them is just beginning to be appreciated. Since the department has been given the unrestricted right to establish what standards of care it believes necessary, it may become a leader in the work of improving the health of aged people.

Approximately six out of every seven of the persons seventy years of age and over who will apply for outdoor assistance under the law will be suffering from physical or mental handicaps. The most outstanding of these will be rheu-

matism, arthritis, heart diseases, and diseases of the nervous system and special sense organs. At the present time only one-fourth of the old people in Boston who are being cared for by public support are receiving medical aid from outside their homes.

Perhaps the outstanding need for the improvement of the health of aged people is the establishment of public clinics to study the chronic diseases of old age and to give care to the many people who are not ill enough to go to hospitals, nor able to pay doctors to come to their homes. Such clinics should also study the habits of normally healthy old people and the psychoses of old people. Comparatively little is known about these subjects at the present time and an understanding of them is essential to the wisest administration of old age assistance. Another great need of aged people is that of more nursing care. Many of the old people need better housing. Strangely enough, this was found to be particularly true of the men and women who were suffering from diseases that are harmfully affected by climbing stairs, and by those who were living alone. Other health needs that may at first seem less important, but which must, nevertheless, be considered by the Department of Public Welfare before it may claim to give "adequate care" to the old people of the state, are those of cheer and of some form of occupation or recreation.

The cost of supplying new facilities for caring for the health of aged people, where they have not previously been thought necessary, will be great, but the outlay will in reality result in a certain amount of saving. Many old people will be helped to remain in sufficiently good health to continue work longer and to postpone the time when they need to apply for assistance. Others will be cured by preventive measures at clinics and will not require the more expensive treatment of hospitals.

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THE ALLEGED SCIENTIFIC ERROR

Dr. Deycke who was in charge of the Calmette cultures furnished to the Luebec Hospital in July 1929 in his testimony in the Calmette antituberculin inoculation trial, said, according to a copyrighted report in the *New York Times:* "I was then firmly convinced both of innocuousness and usefulness of the Calmette remedy. I now freely confess that it has been a scientific error and I have come to this conclusion through research undertaken by me since the disaster of a year and a half ago. If the court holds me responsible for that error, I am ready to be sentenced."

THE MEDICAL POPULATION OF NEW YORK CITY

The *New York Medical Week* states that there is a doctor in New York City to every six hundred and twenty inhabitants. The figures for the rest of the State are one doctor to one thousand.

This means that with the progress of medicine in preventing disease and the large number of doctors, now practicing and in prospect, that there will be less for the individual doctor to do and consequently a diminishing income unless there can be a readjustment of fees.

MEDICINE STANDS AS THE GREAT BENEFICIARY OF THE FOUNDATIONS

A survey of ninety-one foundations, as reported in daily papers, shows that the disbursements for last year by these organizations amounted to $52,500,000. Of this amount, medicine and public health received $18,627,222 which exceeded grants to general education by over four million.

This is a demonstration of the confidence of these great charities in medicine. This material recognition puts a great responsibility on the medical profession to maintain the tradition of the past in service to mankind.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17461

A WEEK'S JAUNDICE IN A WOMAN OF THIRTY-ONE

MEDICAL DEPARTMENT

An unmarried German-American woman thirty-one years old, a clerk, entered on May 12 for study. The chief complaints were anorexia of two weeks' and jaundice of one week's duration.

The illness began with epigastric discomfort and eructations at two o'clock following luncheon. Her temperature was 100°. A physician gave her medicine to produce vomiting. She vomited twice with relief. The following day she felt well except for weakness and generalized itching of the skin. The weakness persisted. On the third day she had rather severe constant pain in the right upper quadrant radiating to the back and the right shoulder and lasting three hours until relieved by pills given by her physician and hot and cold water bags. By the following morning the pain was gone. From that time until admission she felt quite well except for anorexia and weakness. She had had no chill. Her physician thought her skin had been yellow for a week. Five days before admission her friends noticed that her sclerae were yellow. Several times during the illness her urine had been very dark.

The family history is not significant. A maternal and a paternal aunt had cancer.

Her past history is negative except for appendectomy ten years before admission and a little gas and epigastric discomfort at intervals of several months for years. Her best weight was 126 pounds following the appendectomy. Her usual weight was 112, her present weight 108.

Clinical examination showed a poorly developed, emaciated young woman appearing chronically ill but in no apparent discomfort. The skin and sclerae showed a moderately deep icteric tint. The heart and lungs were negative. The liver dullness extended down to the umbilicus. There was a small nodule just above the umbilicus, not tender, moving with respiration. Rectal examination was negative. The extremities, pupils and reflexes were normal.

Before operation the urine was normal in amount, the specific gravity 1.010 to 1.030. There was a slight trace to a very slight trace of albumin at three of four examinations, bile at all, diacetic acid and 1 to 2 leukocytes per field at the first. The renal function was 85 per cent in two hours. Blood examination showed 14,800 to 11,900 white cells, 84 per cent polynuclears, hemoglobin 70 per cent, reds 3,790,000 to 3,810,000, platelets slightly decreased. The smear was otherwise normal. Hinton was negative. A liver function test showed 90 per cent retention. The icteric index was 30 to 35 on May 13, 75 to 100 May 18, 50 May 25. A van den Bergh on May 13 was 19.2 milligrams, direct red, May 18 18.75 milligrams, May 25, 9.47 milligrams. The nonprotein nitrogen was 30 milligrams. A urine culture showed no growth. An echinococcus agglutination test was negative. The fasting contents of the stomach showed no free acid, total acid 5. Test meal at half an hour showed free acid 37, total acid 40; at an hour free acid 60, total acid 80. Guaiac was negative on all three specimens. The bleeding time was 2 to 3 minutes. The clotting time was 8 to 10 minutes at five tests, 2 minutes at one.

X-ray examination of the gall bladder, not a Graham test, showed no visible stones. The kidney outlines were normal. The spine was negative except for lateral curvature. The heart and lungs were not remarkable except for moderately prominent hilus shadows. Examination with a barium meal was negative. A barium enema showed a convex outline in the region of the hepatic flexure which suggested pressure in that area. The colon did not fill readily and there was a deformity of the entire ascending colon. Reëxamination was suggested.

On May 21 operation was done. The patient made a satisfactory convalescence for the following week, with some vomiting of bile-stained material for the first two days. The jaundice slowly cleared. On May 26 the urinary sediment showed much bile. On May 28 the patient began to run a temperature with daily swinging reaching 104°. On the night of May 29 she vomited twice, 4 ounces and again 16 ounces of bloody material with clots and some fresh blood. The blood pressure fell. Transfusion was done at once, and May 30 another transfusion. On May 31 she vomited more blood, became rapidly weaker and died.

CLINICAL DISCUSSION

BY RICHARD C. CABOT, M.D., AND GEORGE W. HOLMES

NOTES ON THE HISTORY

DR. CABOT: I can make no guess on the basis of two weeks' anorexia and one week's jaundice.

Right upper quadrant pain radiating to the back and the right shoulder is suggestive of gall stones, though she is pretty young for it.

The essentials in that history seem to be an attack of pain which certainly suggests biliary colic, jaundice and loss of weight. I should not say there was anything else significant. We think of gall stones and catarrhal jaundice. We think of the possibility of less common diseases of the liver and the biliary tract.

They evidently think she has been ill longer than she knew.

Of course they are wondering whether that is malignant disease. She is young for it. But the rest of the history would go with it pretty well.

NOTES ON THE PHYSICAL EXAMINATION

She had been vomiting. That would account for the diacetic acid.

The important thing in the blood examination is the red cells. They are distinctly diminished. Without hemorrhage that cannot happen in a short time. It cannot be produced by gall stones. She must have something besides gall stones and catarrhal jaundice in order to produce that anemia.

We think of cancer of the stomach with metastasis in the liver, but we have not the evidence. The stomach examination is negative.

The clotting time of two minutes is a little surprising. It is not what one would expect in a person so jaundiced.

In the x-ray examination they are thinking of metastases from malignant disease, presumably in the spine.

I suppose a big liver due to any cause would exert pressure on the hepatic flexure.

DR. HOLMES: The x-ray examination of the chest confirms the physical findings,—normal lung fields, small heart and low diaphragm. It is interesting that in some of these cases with a rather low diaphragm the liver appears to be enlarged, but is not. In the type of people who have corset liver the liver is down lower than otherwise. The film of the abdomen, also showing the spine and pelvis, is essentially negative. Those are the main kidney outlines on both sides in so far as we can determine.

DR. CABOT: Aren't those pelvic bones distorted by the way the film is taken?

DR. HOLMES: These films are taken with a Potter-Bucky diaphragm and are a considerable distance from the bones when the exposure is made. That tends to magnify the shadows. These films show a good deal of magnification.

I am sorry we have no films of the stomach. In this case there is some question of a stomach lesion. It is customary in our clinic not to take films if the fluoroscopic examination is entirely negative.

This film was taken after the colon was filled with the barium solution. On the right side the cecum is not well filled. There is nothing characteristic, however, about the appearances. It could be a normal bowel poorly filled because of improper preparation of the patient; or the appearance might be due to spasm or anything which would cause obstruction or increased irritability of the colon. If it were a new growth in the colon extending to the hepatic flexure it would have to be an enormous growth, although of course we cannot rule that out at all. I should say the x-ray evidence is negative up to the examination of the colon.

DR. CABOT: If there were a lesion there wouldn't the colon above it show dilatation and hypertrophy?

DR. HOLMES: If the lesion were in the cecum the dilatation would have to be in the ileum. The dullness that was spoken of probably means the liver. The liver would not have to be enlarged to do that, as the patient is a ptotic.

DR. CABOT: It seems to me the most interesting point is that we do not need to suppose the liver is enlarged. If the whole organ is depressed, of course it may not be enlarged at all. With such a low diaphragm as that is, enlargement does not have to be considered.

DIFFERENTIAL DIAGNOSIS

They did an operation and we have to say what they probably did it for. The essentials seem to be emaciation, deep and so far as I know persistent jaundice, a history of one attack like gall stones, with no recurrence, and a liver which may or may not be enlarged. It may have been enlarged; my guess is that it still is enlarged. We cannot be sure of it, as in this patient everything is so displaced by ptosis.

It seems to me the best way is to start with the jaundice. We know she has jaundice. We have to think of the causes of fatal jaundice. It cannot be catarrhal jaundice. Can it be gall stone jaundice? Yes. She may have died after a gall stone operation. We have no way to rule that out.

What else may it be? Cancer. There are three common causes of jaundice: catarrhal jaundice, gall stones and cancer. We cannot rule out gall stones or cancer. She is young for cancer. There is no indication of a primary focus. Primary cancer of the gall bladder is not common. It is pretty rare. If it is secondary we do not know to what it is secondary.

Cirrhosis of the liver? There is nothing to suggest it in the history or the physical examination. Of septicemia and other hemolytic types of jaundice we have no suggestion.

It seems to me we come down to gall stones or cancer. I do not believe I can go any further. If it had been cancer of the pancreas they should, in such a thin patient, have felt the gall bladder. In most cases of jaundice due to cancer of the head of the pancreas or the bile ducts the gall bladder becomes enlarged. According to Courvoisier's law cancerous jaundice gives a big gall bladder. Jaundice minus a big gall bladder more often goes with gall stones. We felt no big gall bladder. It may have been there, but we have not the evidence, and they had a good chance to feel it in an emaciated woman. It seems to me that if we are going to stick to the evidence before us we cannot make any diagnosis. I do not know why they operated. I

imagine they operated because they thought it might be gall stones. Or perhaps there was some further thought. They excluded echinococcus.

Are there any other diagnoses?

A STUDENT: Liver abscess?

DR. CABOT: I do not think we need consider liver abscess. Liver abscess would have been sure to cause some evidences of inflammation if it caused jaundice, and it does not ordinarily cause jaundice. I think it is safe to exclude that unless as part of a sepsis ascending from gall stones or cancer.

A STUDENT: How would you bring in this question of severe pain if it were malignant?

DR. CABOT: I do not know how the severe pain that sometimes occurs in malignant disease of the gall bladder or of the kidney or the head of the pancreas is to be explained. We do not always have it. The disease may be perfectly painless. But we are accustomed to the association of malignant disease with pain, though not with sudden attacks, which seem much more like gall stones.

I am going to say gall stones because she is a young woman and because there is no good evidence of anything else.

PREOPERATIVE DIAGNOSES

Carcinoma of the stomach?
Carcinomatosis?

OPERATION

Exploration of the abdomen showed the preoperative epigastric tumor to be the protruding portion of a large irregular tumor of the pancreas. Associated with the tumor were multiple large lymph nodes running along the common duct. The gall bladder was much dilated. The liver was apparently enlarged by congestion. All the tissues were jaundiced. There was no unusual bleeding. The stomach showed no abnormality.

Exploration of the pelvis showed no evidence of malignant disease involving the ovary, the pelvis or the colon.

A specimen was removed from the pancreatic tumor and was found to be very highly malignant carcinoma. Accordingly a cholecystogastrostomy was done. A small tab of fat was sutured across the anterior line for anastomosis.

PATHOLOGIC REPORT

Metastatic adenocarcinoma.

FURTHER DISCUSSION

DR. CABOT: Apparently they did not even consider gall stones.

If the liver was enlarged I do not know why they did not feel it.

She died of hemorrhage after an operation for carcinoma, with no good evidence that I see of peritonitis, but with no doubt of the diagnosis of carcinoma of the pancreas. Where else it was besides in the pancreas and the glands I do not know.

A STUDENT: How do you account for the large size of the liver without knowing the diaphragm was low?

DR. CABOT: Because of the stuffing of the liver with bile. The backing up of bile swells the liver out.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD; POSTOPERATIVE)

Carcinoma of the pancreas.

DR. RICHARD C. CABOT'S DIAGNOSIS (PREOPERATIVE)

Gall stones.

ANATOMIC DIAGNOSES

Carcinoma of the head of the pancreas, with obstruction to the common bile duct and with regional and pulmonary metastases.
Acute cholangitis.
Jaundice.
Hepatitis.
Cholecystogastrostomy.
Hemorrhage.
Leiomyoma of the uterus.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: The question of enlargement of the liver in obstructive jaundice is perhaps worth a minute's discussion. Bile stasis can undoubtedly cause marked enlargement of the liver. When the stasis can be relieved by an anastomosing operation such as was attempted in this case, the liver will often shrink with great rapidity. The relief afforded by such operations is often great, but the risks are also high. A very large proportion of the cases in which this operation is attempted seem to go wrong in one way or another. Hemorrhage of course is always to be feared in cases of long-standing jaundice. In this case we found a large clot in the stomach, and the small intestine was filled with tarry material. The immediate cause of death was postoperative hemorrhage into the intestinal tract.

There was a large cancer of the head of the pancreas about 7 centimeters in diameter. There were metastases in the bronchial lymph nodes. There was nothing else of interest.

CASE 17462

PAINLESS SWELLING OF THE ABDOMEN ASSOCIATED WITH JAUNDICE

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. MILTON L. MILLER*: *First admission.* This patient was a thirty-six year old rubber

*Senior interne on the East Medical service.

worker. He first entered the hospital four years before his second admission.

He had felt perfectly well until six weeks before that time, when he noticed beginning abdominal swelling and tenseness which had gradually increased. He had some non-productive cough, mostly at night. His bowels were regular. He entered the hospital because he was worried about the size of his abdomen.

On examination the sclerae were slightly icteric. He had a large right upper quadrant mass thought to be the liver. The edge was not definitely felt. The chest showed squeaks and groans throughout. There was no dullness; there were no other signs. The urine was positive for bile. He had secondary anemia, a red cell count of 2,900,000, hemoglobin of 70 per cent. The smear showed 73 per cent polynuclears, 21 per cent lymphocytes, 6 per cent large mononuclears. The icteric index was 23. Liver function tests showed 20 to 10 per cent retention. No sputum examination was done.

X-rays of the chest suggested peribronchial infiltration. The stomach and duodenum were negative. A barium enema showed the colon apparently displaced downward by a large mass in the upper abdomen.

Because he was an Italian and because he had an unexplainable mass in the abdomen and some dullness, we decided to explore. The diagnosis before operation was hydatid cyst.

At operation a large smooth liver was found extending almost to the umbilicus. There were no nodules. The rest of the biliary tract was negative. A small piece of the liver was taken out for biopsy. Examination showed lymphoid cell infiltration in the portal canals and within the lobules. No evidence of lymphoblastoma was definitely made out.

History of interval. He returned home and rested for six months, then spent the next six months working in a rubber factory. He was forced to give up because of weakness, increasing jaundice, dull generalized abdominal pain and increasing cough. He thought his abdomen at the time was a little larger than usual. During the following three years he stayed at home. He began to have frequent severe attacks of asthma. His abdomen became larger, his jaundice gradually deepened and his cough became more troublesome and productive of thick yellowish sputum. For the year before his second admission he had clay colored stools, marked thirst, nocturia three to four times, headaches and some failure of vision. For six months he had been constantly in bed.

Second admission, May 17, nearly four years after his previous discharge.

He was emaciated, deeply jaundiced and had a peculiar brownish pigmentation over his skin, which, combined with the yellow color made him look unusual. There were yellowish plaques over his eyes extending to the nose and a good deal of cyanosis. It was hard to interpret that. He showed the same findings in the chest as before; squeaks and groans. The abdomen was distinctly large and tense. On this admission the liver felt definitely smooth, with a continuous smooth edge. No other masses were felt. The blood pressure was 105/65.

The urine was positive for bile on three occasions, otherwise not remarkable. The white blood cell count was 7,000, the red count 4,000,000. The smear showed 42 per cent polynuclears, 47 per cent lymphocytes and 11 per cent large mononuclears. The stools were light yellow on two examinations. Guaiac was negative. The stools had been clay colored for years, he said, before admission. The liver function varied between 25 and 40 per cent. The van den Bergh was 9.98 on admission. During the last week of his stay it rose to 11.12. The icteric index was 45 to 50 at admission, 100 on June 2.

At x-ray examination a flat abdominal film showed a mass of soft tissue dullness in the left upper quadrant extending to the level of the iliac crest. There was no positive evidence of enlargement of the liver. There was some question of possible transposition of the abdominal viscera. There was considerable accumulation of fluid in the stomach at six hours, though there was no definite evidence of disease of the stomach or duodenum. The diaphragm was high on both sides. The lung markings were grossly thickened throughout. There were multiple small areas of calcification at the lung roots, and several enlarged glands.

He had frequent asthmatic attacks in the ward. He was given a large dose of adrenalin with some relief. Under x-ray treatment the liver showed slight shrinkage. On May 23 three glands were removed from the axilla for biopsy. They showed no evidence of lymphoblastoma. His appetite was poor. He grew gradually weaker. He had irregular fever on this admission for which no adequate explanation was found. Three weeks after admission, without much warning, he became drowsy, ate nothing, gradually lapsed into coma and the following day died.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Tumor of the liver (malignant? cirrhosis?).
Pericarditis.

ANATOMIC DIAGNOSES

Biliary cirrhosis, infectious type.
Acute bronchitis.
Bronchopneumonia, slight.
Emphysema, slight.

Pathologic Discussion

Dr. Tracy B. Mallory: The history fits well, of course, with a typical hypertrophic biliary cirrhosis, though he is a little old. It is curious that in the cases checked by autopsy almost ev-

ery time we have made a diagnosis of biliary cirrhosis we have been wrong. Several have turned out to be diffuse aleukemic leukemia. This time, however, there is no doubt but that that was the correct diagnosis. It was a true infectious type of cirrhosis, an ascending process running up the biliary tract leading to a very diffuse cirrhosis. There was slight increase of the fibrous tissue around every lobule without destruction of the general architecture of the liver. The organ was enormously hypertrophied, weighing over 5000 grams, which is at least two and a half times normal size. The surface was almost but not absolutely smooth. When we stripped off the capsule we could see quite evident very fine granulations not more than one or two millimeters in diameter.

There was a very diffuse lymph node enlargement obvious throughout the body, most marked in the mesenteric and retroperitoneal lymph nodes, which showed extremely marked hyperplasia. The lymph follicles were very big. The sinusoids were also much dilated and filled with great numbers of mononuclears and hyperplastic reticular cells, all of which contained great amounts of bile pigment. Bile can be very toxic to many cells in the body. It almost invariably causes degenerative changes in the renal tubes. Occasionally the blood vessels show signs of reaction to it.

The entire intestinal tract showed rather marked edema. The mucous membrane and the muscular layer were separated by a much wider zone of tissue than usual. Almost all cases of cirrhosis show that, especially when ascites is present.

His lungs showed findings that are perfectly consistent with bronchial asthma, although I do not believe I should be able to make the diagnosis from them. There was a marked acute bronchitis and in many areas away out in the finer ramifications of the bronchial tree we found lymph nodules. That is not absolutely abnormal, but is a little unusual in a man of his age.

DR. CHESTER M. JONES: I think there is one thing that might be noted in passing. This is just another good example of cirrhosis of the liver with unexplained fever; in other words fever is a constant accompaniment of cirrhosis and should be expected with it rather than not expected with it. We have it in practically every cirrhosis case that comes into the ward.

DR. MALLORY: I suppose it would be most characteristic in this type.

A PHYSICIAN: What did the lungs show?

DR. MALLORY: The lungs were slightly emphysematous, not markedly so. There was just a trace of bronchopneumonia, not enough to be of any clinical significance.

Of all the various types of cirrhosis this is the one that one reads about most often and, it seems to me, sees the least. This is the only case in five years we have been able to check at autopsy, though we have had two or three cases which we have been able to prove were biliary cirrhosis by biopsies from the liver.

DR. FULLER ALBRIGHT: What was the cause of the cirrhosis? Were there any stones or evidence of infection in the larger bile passages?

DR. MALLORY: No. A very minor degree of biliary cirrhosis is a common thing where you have bile duct obstruction. A large proportion of cases of carcinoma of the pancreas show a slight biliary cirrhosis, but not enough to be clinically significant. Gall stones will also do it. I have seen quite marked biliary cirrhosis with a congenital partial stenosis of the common bile duct.

A PHYSICIAN: Was the gall bladder normal?

DR. MALLORY: Yes.

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ENCEPHALITIS AND ITS EFFECT ON NEUROLOGY

THERE have been four distinct stimulations, in the last fifty years, to the advancement of that part of medicine known as neurology. The first change came after the War of 1870, when our ideas of cerebral localization, badly confused by the phrenologists, were set right as the result of the physiological investigation of the cerebral cortex. Following this came the proof that living organisms causing infectious diseases could also be the cause of certain obscure nervous diseases. The so-called "system" diseases, such as, for instance, hemiplegia, tabes, and others, were considered from 1870 on as definitely structural or organic in character. With the demonstration of infectious diseases of the central nervous system, certain disorders previously considered as functional were now classified in the structural group. As examples of these, vague, ill-defined diseases like chorea, ties, certain compulsive states and writer's cramp, were looked upon as the result of organic lesions of the central nervous system. Thirdly, the Great War was an impetus to the study of the psychoneuroses, especially those of the conflict type. Lastly, a new disease of the infectious variety, widespread in extent, has been even a greater stimulation to the study of the function of the central nervous system. This disease, encephalitis lethargica, first adequately described by Constantin von Economo in 1917, has had the tendency to turn again some of our so-called functional diseases into the structural category. No other disease has given us such an insight into the functions of the central nervous system and a summary of the clinical entity in all its aspects, by the original discoverer, is a contribution of great worth to medical literature. Professor von Economo of the University of Vienna has written such a monograph, describing his experiences with the disease, and an excellent English translation has recently appeared*.

Although the disease probably had appeared in isolated communities before 1917, it certainly is fair to state that it had never been adequately described before the work of von Economo, nor had the disease ever expanded to such epidemic proportions as it did in 1918-1921. At the present time encephalitis lethargica is nearly quiescent, very few cases having been observed in the last two or three years. It seems unlikely, however, that a disease of such widespread character will continue to lie dormant, and a careful review of the literature, combined with a record of the author's own experiences, is of great value not only in describing the disease, but also in putting on a structural basis many symptoms formerly considered as functional.

*von Economo, Constantin. Encephalitis Lethargica: Its Sequelae and Treatment. Translated and adapted by K. O. Newman, M.D. Oxford Medical Publications. Oxford University Press; London: Humphrey Milford, 1931. xiv + 200 pages. Price, $6.00.

THE RODENT ULCER

THE rodent ulcer, otherwise known as the jacobean ulcer, hair matrix carcinoma or basal cell carcinoma is not only one of the most frequent types of neoplasms of the skin but one of the most interesting. Even at the present time there is considerable doubt as to the exact histogenesis of this well-known lesion. While the term basal cell carcinoma[1] has come into very common use, there is a strong trend to consider this tumor not as originating from the basal layer of the skin but as a derivative of the cells of the hair follicles[2]. From the embryological standpoint, this differentiation is perhaps over-refined as there is some uncertainty as to whether the cells of the basal layer can be differentiated from the hair follicle cells with any degree of accuracy.

These tumors are of special interest be-

cause of their particularly low grade of malignancy. While they are at times rather resistant to treatment, they but rarely metastasize. However, they may frequently heal over superficially following treatment and suggest a cure, only to continue growth beneath the surface.

One of the outstanding characteristics of these tumors is infrequency of metastasis. Metastasis even to regional lymph nodes is extraordinarily rare, and when it does occur there is usually present some atypical characteristic in the primary lesion. One may frequently find in the rodent ulcer varying degrees of differentiation, including epithelial pearls, well-defined basal cells or even suggestions of coil gland structures.

The frequent occurrence of this relatively mild tumor accounts in large part for the high percentage of cures obtained in skin cancer.

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HOW FAR MAY PHYSICIANS USE NEWSPAPERS IN DISCUSSING THEIR PERSONAL ATTITUDE TOWARD VARIOUS KINDS OF PRACTICE?

An answer to this question which would relieve the minds of many in the profession of uncertainty as to the ethics of certain forms of newspaper publicity, would be thankfully received. For many years conservative practitioners have looked askance upon the use of newspapers as vehicles for the expression of criticism respecting other physicians or their methods of practice. If in addition to such criticism occasion is taken to exploit one's own qualifications, pronounced objections have been voiced from time to time.

A regulation adopted by the Medical Society of the County of New York and the Academy of Medicine of New York states that "a physician shall not directly or indirectly seek publicity for himself tending to call attention to his professional attainments" and that an offender is liable to disciplinary measures if this regulation is not observed.

The question as to the propriety of a certain interview of John F. Coggswell with a Boston physician which was published in the Boston Sunday Post of October 18, 1931 is agitating the minds of some doctors.

In this published interview Mr. Coggswell characterizes this doctor as "A Noted Boston Physician" and a "prominent Back Bay specialist" and then goes on to quote the doctor as an ardent critic of some clinics, because applicants for opinions respecting health are subjected to a multitude of tests which are unnecessary, at an expense of $250 in some instances, which procedure is characterized as "close to highway robbery". Although faint praise of some clinics and certain forms of group practice tends to modify the severity of the attack, the impression persists that the comparison of the costs of clinic service with that which the doctor states that he can give has led to expressions which seem to be in the nature of personal advertising which we trust was not intended. They can only be explained by the assumption that the intensity of his disapproval of certain clinics distorted his sense of relative values.

This doctor is quoted as saying, "Now, I'm telling you that charging any man $100 to assure him that there is nothing the matter with him is coming mighty close to highway robbery. I can do that right here in my office at a cost of from ten to fifteen dollars. If there is some condition that baffles me that may or may not mean incipient trouble I can have that ascertained by a competent specialist and still keep the total charge for examination under $25. . . .

"Most of us are perfectly willing to give our service to those who cannot pay anything and to grade our charges to fit the pocketbook of all who come to us for advice.

"I've always tried to impress my patients with the fact that if they will tell me their true circumstances the charge for services will be no more than they can afford to pay."

In one part of the interview this physician states that he has formed connections with specialists in other branches who are not dollar chasers and who after being told what the charge should be have not rebelled, and the belief is expressed that such an arrangement gives the patient just as good service as can be provided by any big clinic.

The question now before us is whether these statements may be construed as advertising beyond what is proper in medical ethics. It would relieve some of the friends of this doctor of embarrassment if he would be willing to say that his opposition to certain objectionable forms of practice led to an unintended competitive comparison of his charges with those of clinics which impose a heavy burden on the indigent patient.

We have been informed that some careful physicians will not grant interviews on medical subjects unless the proposed publication is submitted for approval or rejection as the case may be. This is a safeguard and might be recommended as a regular custom, for reporters cannot be expected to report accurately the attitude of a scientific practitioner on subjects about which there are radical differences of opinion.

In this connection it may help any uncertain-minded person who wants to avoid the likelihood of criticism to keep in mind the advice of the late Dr. Osler, recently quoted by Dr. Robey as follows:

"In the life of every successful physician there comes the temptation to toy with the

Delilah of the press, daily and otherwise. There are times when she may be courted with satisfaction, but beware! sooner or later she is sure to play the harlot, and has left many a man shorn of his strength, viz., the confidence of his professional brethren."

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

MEANS, J. H. A.B., M.D. Harvard University Medical School 1911. Chief of Medical Service, Massachusetts General Hospital since 1923. Jackson Professor of Clinical Medicine, Harvard since 1923. His subject is "Dyspnea." Page 939. Address: Massachusetts General Hospital, Boston.

JONES, T. DUCKETT. B.A., M.D. University of Virginia Department of Medicine 1923. Director of Research, House of Good Samaritan. Instructor in Medicine, Harvard Medical School. Assistant in Medicine, Massachusetts General Hospital. His subject is "Cyanosis and Clubbing of Fingers." Page 940. Address: 25 Binney Street, Boston.

LEVINE, SAMUEL A. A.B., M.D. Harvard University Medical School 1914. Assistant Professor of Medicine, Harvard Medical School. Senior Associate in Medicine, Peter Bent Brigham Hospital. Visiting Physician, Beth Israel Hospital. Associate in Medicine, New England Baptist Hospital. His subject is "The Factor of Bronchial Dyspnea in Heart Disease." Page 941. Address: 270 Commonwealth Avenue, Boston.

BLUMGART, HERRMAN L. B.S., M.D. Harvard University Medical School 1921. Associate Professor of Medicine, Harvard University. Visiting Physician and Director of Medical Research, Beth Israel Hospital. His subject is "The Velocity and Volume of Blood Flow." Page 943. Address: 330 Brookline Avenue, Boston.

BOCK, ARLIE V. A.B., Ph.D., M.D. Harvard University Medical School 1915. Physician, Massachusetts General Hospital. Associate Professor of Medicine, Harvard Medical School. His subject is "Tests of Physical Fitness. Physiology of Muscular Exercise." Page 944. Address: Massachusetts General Hospital, Boston.

FROST, HAROLD M. A.B., M.D. Harvard University Medical School 1915. Medical Director, New England Mutual Life Insurance Company, Boston. His subject is "Functional Tests in the Life Insurance Examination." Page 946. Address: 95 Milk Street, Boston.

LOMBARD, HERBERT L. A.B., M.P.H., M.D. Bowdoin 1915. Director, Division of Adult Hygiene, Massachusetts Department of Public Health. Address: State House, Boston. Associated with him is:

MACDONALD, ELEANOR J. A.B. Principal Statistician, Division of Adult Hygiene, State Department of Public Health. Member of Statistical Section, American Public Health Association. Address: State House, Boston. Their subject is "State-aided Cancer Clinics as Seen by the Practicing Physician." Page 949.

WEISE, ELLWOOD C. M.D. Jefferson Medical College 1920. Assistant Dermatologist, Bridgeport Hospital, Bridgeport, Conn. Dermatologist, City Dispensary, Bridgeport, Conn. Instructor in Dermatology, College of Physicians and Surgeons, Columbia University. Assistant Attending Dermatologist, Vanderbilt Clinic, Medical Center, New York City. His subject is "Sporotrichosis in Connecticut. With Case Report." Page 951. Address: Medical Building, 144 Golden Hill Street, Bridgeport, Conn.

WILLIAMS, CONSTANCE. A.B., M.S. Research Assistant, American Association for Labor Legislation, New York. Her subject is "Opportunities for Improving the Health of the Aged in the Administration of the Massachusetts Old Age Assistance Law." Page 955. Address: 234 Highland Avenue, Winchester, Mass.

MISCELLANY

FOR THE CONTROL OF CANCER

In these days of general business depression, when the immediate need must be met we have a tendency, unhappily, in responding to the emergency, to overlook other less spectacular but absolutely essential charities. Yet the sufferings of hard times are many fold increased when serious or fatal illness occurs. Too often the family is broken up as the result of illness which might have been avoided; and the situation is then indeed tragic.

With insufficient funds the agencies in the field of health education are trying to meet present conditions, to respond to demands even heavier than in normal times, and to carry on so that the ground already won shall not be lost. The New York City Cancer Committee of the American Society for the Control of Cancer, one of these agencies, supported entirely by public subscription, calls attention to the increased need for cancer education during the depression, when so many who lack funds are apt to neglect their health, disregard warning signs, and trust to luck. Particularly in the case of cancer is delay dangerous and early examination and treatment imperatively necessary, since in early treatment lies the only hope of escape. It is gratifying to be assured that as a result of public education in cancer during the past few years, patients suffering

from the disease are coming to physicians at earlier stages in its development, when there is chance of cure. This is due largely to the work of the Society, and is a most helpful advance.

The financing of such work is always a task, and in times of depression a much more difficult one. To secure funds necessary for carrying on its campaign throughout the year, and for responding to the resulting appeals for help, for advice in the particular case, and for information in general, the New York City Cancer Committee of the American Society for the Control of Cancer has put out an address label which carries the emblem of its work—a sword twined with the healing symbol, typifying the fight for humanity against disease. The use of these strikingly effective labels, an ornament to the Christmas package, indicates endorsement of the work and participation in it. They are sold in lots of ten for one dollar, all the proceeds going to the Committee.

Those who are in touch with the situation tell us that the need is great, and no one who has seen anything of the ravages of cancer in its later stages can doubt that this is so. The work of cancer education must go on, and the response to the appeal for funds to continue it should be generous.

Labels can be ordered by mail, in any quantity, from the New York City Cancer Committee, 34 East 75th Street, New York.

PSYCHIATRY IN MEDICAL EDUCATION

The National Committee for Mental Hygiene Establishes New Division to Promote Psychiatric Education and Develop Trained Personnel

EXCERPTS FROM THE PROGRAM OUTLINED

The adoption of a comprehensive plan for the development of an adequate psychiatric personnel to meet the needs of rapidly expanding psychiatric and mental hygiene activities throughout the country, was announced October 25 by The National Committee for Mental Hygiene, through its General Director, Dr. C. M. Hincks.

The growing demand for trained workers, according to the announcement, has led to the decision by the Executive Committee, in consultation with experts in psychiatric education, to embark on a definite program of study and activity looking to the training of an increasing number of such workers to meet the anticipated needs of the future as well as the pressing needs of the present.

THE NEED

The National Committee has been concerned for some time by the lack of trained psychiatrists to fill important positions and by the fear that these positions would be filled by inadequately prepared workers unsuited to the exacting demands of this type of work. With more and more mental hospitals becoming active treatment centers, and with the rapid development of psychiatric services in connection with general hospitals, schools, courts, correctional institutions, social welfare agencies and other centers, there has ensued an unprecedented need for workers qualified for responsible posts in this important field, and there is a danger that standards may not be maintained.

THE PLAN

To carry out the plan, a new Division of Psychiatric Education has been created in the office of The National Committee for Mental Hygiene, with the aid of The Commonwealth Fund, The New York Foundation, and The American Foundation for Mental Hygiene, all of which have contributed to the support of the project.

The Division is under the immediate direction of Dr. Ralph A. Noble, of Sydney, Australia, who has a wide knowledge of psychiatric education in Europe and America and was invited to this country to inaugurate the work of the new Division and to take active charge of the program; and associated with him is Dr. Franklin G. Ebaugh, Director of the Colorado State Psychopathic Hospital, who is familiar with psychiatric training problems in this country and has given the subject special study.

AIMS AND ACTIVITIES

The work of the Division will center largely around the medical schools with a view to the development of adequate psychiatric teaching and the training of graduates and undergraduates in this subject. The purpose will be two-fold: to attract medical students to the specialty of psychiatry, and to give those who plan to engage in other specialties or in general practice such instruction as will equip them to better deal with the psychiatric problems that will inevitably arise in their work.

ADVISORY BODY

The Division will have the benefit of the services and counsel of an Advisory Committee composed of leading medical and psychiatric educators who will meet regularly to study new problems and to guide the development of the program in general. This committee at present consists of the following: Adolf Meyer, M.D., Professor of Psychiatry, Johns Hopkins University, Baltimore, Chairman; Albert M. Barrett, M.D., Professor of Psychiatry, University of Michigan; Earl D. Bond, M.D., Professor of Psychiatry, University of Pennsylvania; C. Macfie Campbell, M.D., Director, Boston Psychopathic Hospital, Professor of Psychiatry, Harvard University; Clarence O. Cheney, M.D., Director, New York State Psychiatric Institute and Hospital, Professor of Clinical Psychiatry, Columbia University; Lawson G. Lowrey, M.D., Director, Institute for Child Guidance, New York City; Maurice H. Rees, M.D., Dean, School of Medicine, University of Colorado, President, Association of Medical Colleges, Denver; Arthur H. Ruggles, M.D., Superintendent, Butler Hospital, Providence; and William L. Russell, M.D., President, American Psychiatric Association, White Plains, N. Y.

INVESTIGATING TEACHING PRINCIPLES

Dr. Noble, when asked to comment upon the possibilities of the work of the new Division of Psychiatric Education, stated: "There is no doubt that in some of the universities of this country excellent facilities have been developed for the teaching of psychiatry to undergraduates and graduates in medicine, and it is fortunate that more students are being interested in this important aspect of medicine."

A "VITAL CONTRIBUTION"

Dr. Hincks issued the following statement in further interpretation of the program: "If the new Division of Psychiatric Education can furnish an impetus to the recruiting and effective training of competent psychiatrists, and if it can foster better educational arrangements in mental hygiene for all students of medicine, it will contribute in a vital way to mental hygiene progress."

STATEMENT BY THE NATIONAL COMMITTEE FOR MENTAL HYGIENE

A MAJOR PROBLEM

"The dearth of competent psychiatrists is becoming a major issue in human welfare. It is no longer merely a matter of over-crowded mental hospitals in which the patients receive but momentary attention from the mental specialists. . . . We are confronted by a matter amounting to a national emergency — one not alone of producing psychiatrists enough to meet the need, but one of producing, in large number, psychiatrists competent to handle the extremely involved problems for which their aid is more and more insistently requested."

In these strong words a committee of the American Psychiatric Association which has been studying the problem of psychiatric personnel summed up its conclusions on the matter. This picture of the need is not over-drawn. Of the approximately 160,000 physicians in the United States today, somewhat over 40,000 are specialists in the various branches of medicine, and of these but 1,600 are psychiatrists, or 1 in 25. In other words, there are a hundred times as many doctors in physical as in mental medicine. This is out of all proportion to the magnitude of the problem of mental and nervous disease, to the known facts regarding the extent and frequency of these disorders.

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

WHAT THE PUBLIC SHOULD KNOW OF DIABETES*

The people of Massachusetts should know something about diabetes, because there are so many individuals in the State who have it. Our Department of Health estimates that the number is 14,000, and of the present population it is probable that three or four times as many more will develop it before or during their old age. There is a second and a better reason for becoming acquainted with this disease—if the patient thoroughly understands it, treatment is simplified and he can live a long, happy and useful life, whereas otherwise life may end suddenly, or disagreeable complications appear. Finally the best reason of all for learning about diabetes is the strong possibility that, with knowledge concerning it, you may avoid it.

Diabetes is rare in childhood and two-thirds of all the cases are above the age of forty years. We do not know how to prevent it in the young, but we do know that from forty onwards it is increasingly common if the individual is or has been fat. Therefore, the chances are overwhelming that you will not get diabetes, if your weight is kept within normal limits. Heredity also may be a factor, and two diabetics should not marry one another and have children, but as yet it would not be right to forbid all diabetics from marrying, because their descendants are no more liable to have the disease than would be the children of their non-diabetic brothers and sisters. However, the element of heredity in diabetes is strong enough to make it doubly important for relatives of diabetics to control their weight and not get fat.

Diabetes comes on because the body ceases to get the benefit of the sugar which is formed out of the food. During health this sugar is used to keep us warm and to supply fuel for the muscles, including those of the heart, and for this purpose it is stored as animal starch (glycogen) in the liver and muscles, but if there is an extra supply, it is changed to body fat just as hogs change to fat the sugar and starch which they get out of corn. This is a complicated process, which is marvelously regulated by the secretion of a gland, the pancreas. commonly known as the sweetbread. From this gland ten years ago a substance named insulin was extracted, and it is the lack of this insulin which causes diabetes. In consequence, the sugar formed from the food collects in the blood of the diabetic and escapes unused in the urine. This can be prevented in part by eating less, particularly of sugar and starch, and by eating more of fat, but if this does not correct the trouble, one can take insulin and in this way secure the full benefit of the diet.

Insulin is wonderful. Until it was discovered diabetic children lived only one or two years, but now they can live indefinitely and several of the forty-four I know who have had diabetes ten years, tell me the tenth year of the disease is the best thus far. In one group of five hundred children whose diabetes began after insulin was available, in 1922, only six per cent. have died and in nearly every instance death was unrelated to diabetes or due to ignorance and carelessness. Insulin has also made over the lives of adults. These individuals are surely living twice as long as heretofore, and their lives are productive and not dependent. In fact, largely because the study of their diabetes has

*Broadcast October 29, 1931, Station WBZA—4:50 P. M.

taught them so much about good hygiene, many of them have lived longer with their disease than would have been expected had they not had it.

Insulin is the only drug to be recommended for use in controlling diabetes. It is a drawback that it must be injected under the skin, but the results obtained are so striking that we should not grumble, but study its action and learn better how to use it while awaiting new discoveries which are sure to come. Where there was one doctor investigating diabetes a generation ago, there are one hundred today. If you are not satisfied with the rapidity of the progress in treatment already made, invest some of your money in your hospital or medical school to hurry it up.

The dietetic treatment of diabetes has made great strides since the introduction of insulin largely because of the new light it has thrown upon the disease. At one time to control diabetes the patients almost starved, but now the diet has grown to be so liberal that any diabetic can get plenty of food. The diet has improved in quality too, and today the diabetic is prescribed a satisfying amount of these previously forbidden foods which contain carbohydrate — starch and sugar. Generally the patient does better with insulin, but a goodly number either can do without insulin from the start, or later can give it up.

The diet in diabetes rests on one principle and no treatment succeeds if this is broken. The principle is this—overfeeding is harmful to a diabetic and must be avoided at all costs. Just as overeating helps to bring on diabetes, overeating makes it worse. Therefore, if more is taken of one kind of food, less must be taken of another; if the fat in the diet is increased the carbohydrate must be diminished and vice versa, or else the patient will receive too much food. These two classes of food stuffs—fat and carbohydrate—are like children on the opposite ends of a seasaw. If one child goes up, the other child must come down. Some doctors give much fat and little carbohydrate and others give much carbohydrate and very little fat, but no doctors would prescribe much of both at the same time.

The dangers in the pathway of the diabetic are largely avoidable. If he neglects diet and insulin, he loses so much sugar in his urine that he runs down in strength and weight and becomes an easy prey for any disease. There is no necessity whatsoever for this. Should he deliberately or thoughtlessly break diet and overeat he may develop acid poisoning (diabetic coma) and before we had insulin, this, practically always, meant death in a few hours or days. Fortunately today a large percentage of coma cases can be saved with the help of insulin. Intelligent diabetics know they can prevent going into coma. Whenever they feel ill from any cause they (1) call their doctors; (2) go to bed; (3) drink a cupful of hot liquid every hour; (4) move the bowels with an enema; (5) keep warm; and (6) secure the help of a nurse or someone else to care for them during these critical hours.

Just as diabetic coma comes on from overeating food, so it also arises from overeating one's own body as in the course of a fever. In any fever the patient is overeating, not of food, but of his own tissues. Furthermore during any infection the diabetes becomes temporarily more severe and insulin acts less well. Knowing this doctors teach their patients to take their insulin in larger doses or more frequently during infections and thus not only the harmfulness of the fever, but diabetic coma as well, is prevented. Coma also may come on if a patient accustomed to insulin, suddenly stops taking it and keeps on eating. Such a patient is then really overeating because it was due to his insulin that he was allowed to take his full diet.

Another danger, which fortunately seldom occurs in young diabetics, is diabetic gangrene. This is caused by poor circulation in the feet and the liability to slight injuries which an old person may not notice. Few elderly people realize that their sense of feeling for touch and pain, for heat and cold, is as dull as their hearing and their eyesight. Therefore, slight wounds in old people often go unseen or cared for until the tiny sore has become so extensive that healing is out of the question and the amputation of a toe or a foot is necessary to save life. Gangrene takes a dreadful toll from diabetics, but to a large extent this is unnecessary. If the feet are washed every night, the skin kept in good condition, anything unusual is discovered and can be treated in time. Instead of a Beauty Parlor for his face, a diabetic should visit a Beauty Parlor for his feet, and generally this means a visit to a chiropodist. The diabetic should keep his feet so clean that he would not be ashamed to ask the aid of the bright eyes and nimble fingers of his children or grandchildren to care for each individual toe.

The diabetic should be the cleanest citizen in the community. It pays him more than anyone else to be clean, because his skin is more vulnerable and thus more liable to infection. Injuries to the skin which would be harmless to an ordinary person may prove serious, heal slowly or not at all in a diabetic, and especially in that diabetic who has neglected treatment of his disease. Therefore, again I say it behooves the diabetic to be the cleanest citizen in the community.

First aid treatment of all injuries to a diabetic's skin is important. Avoid strong irritating antiseptics such as iodine. Some surgeons recommend the application of sterile gauze saturated with medicated alcohol or even one of the new antiseptics. Always consult a doctor for any redness, pain, swelling or other evidence of inflammation.

Why do we hear so much about diabetics today? It is very simple. There are many more of them about than ever before, because they all live so much longer. Only a few years ago one in five died the first year his diabetes began, but now only one in twenty-five. Then too we are finding more, because we are looking for them. In January

1922 I saw no cases whose diabetes began after 70 years of age, but in January 1931 there were thirteen. The insurance companies were the first to hunt for diabetes on a large scale, but today you can't get into college or into a prison, into a camp or gymnasium, without a test for the disease; and in fact, about the only places you can enter, unchallenged, are church and the movies, and at the latter you are likely to get a health talk, at the former, if the church is alert, your body as well as your soul will be cared for because cleanliness comes next to godliness!

CORRESPONDENCE

HELP IN GETTING A BETTER DISTRIBUTION OF DOCTORS

Editor, *New England Journal of Medicine,*

Dear Sir:

Commenting upon an editorial in the issue of October 29, it seems to me that medical schools may be of direct help in getting a better distribution of doctors. For the last twenty-five years a standardizing process has been going on in medical education in America until now all medical schools have almost identical curricula. Less fortunate schools by way of endowment and equipment have spent their best effort to copy the procedure of the great schools.

Properly the object of the modern medical school has been to create the best possible physician. It seems to me that the time has come when another type of effort is not only permissible but desirable. Stress has been placed upon chemistry and physics as premedical requirements and upon research, experimentation and the fundamental sciences in the undergraduate medical institutions. It is natural if a teacher is successful that his pupils should wish to be like him. The result has been a turning toward scientific medicine, research and specialization. This, of course, has advanced medicine tremendously.

During the past few years at Tufts College Medical School a definite change in objective as well as in procedure has been carried out. Sociology and psychology are to be encouraged as undergraduate preparation. Actual successful practitioners of medicine are to be kept in leading places on the faculty and undergraduates are being placed in hospitals outside the metropolitan district as junior internes. Here, they not only learn to do as well as to know, but come in contact with local leaders in the profession who have a much more general attitude toward medical practice. Associations and friendships originating during this internship frequently lead to graduate internships in the same hospitals and later to entering practice in the environment of the hospital. It is not maintained that this is the best possible way to teach medicine, but it is believed that it will prove an aid to communities outside the metropolis.

So it seems proper to make some sacrifice in scholarship and to add to the ideal of the perfect doctor another, namely, the best possible medical service for communities now obliged to accept those with no adequate standard.

Yours very truly,
A. WARREN STEARNS.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Ill.,
October 31, 1931.

Managing Editor, the *New England Journal of Medicine,*

In addition to the articles enumerated in our letter of September 25 the following have been accepted:

Lederle Laboratories, Inc.
- Diphtheria Toxin-Antitoxin Mixture (0.1 L+) 3 syringe packages
- Pollen Antigens—Lederle, Series D packages
- Prostrate Pigweed Pollen Antigen—Lederle
- Summer Cypress Pollen Antigen—Lederle
- Thromboplastin Local—Lederle

H. K. Mulford Co.
- Tuberculin Intracutaneous (Human Type) 3 cc. vial packages
- Tuberculin Intracutaneous (Bovine Type) 3 cc. vial packages

Parke, Davis & Co.
- Glaseptic Ampoules Solution Glucose, 50 per cent., 100 cc.
- Scarlet Fever Streptococcus Toxin for Preventive Immunization—P. D. & Co., six 1 cc. vial packages
- Typhoid-Paratyphoid Vaccine (Prophylactic) ten 2½ cc. vial packages
- Typhoid Vaccine (Prophylactic) ten 2½ cc. vial packages

E. R. Squibb & Sons
- Neocinchophen—Squibb
- Tablets Neocinchophen—Squibb, 5 grains

Frederick Stearns & Co.
- Synephrin Tartrate—Stearns
- Synephrin Tartrate Solution, 3%
- Synephrin Tartrate Solution, 5%
- Synephrin Tartrate Emulsion Plain
- Synephrin Tartrate Emulsion Compound

The following articles have been accepted and included with the List of Exempted Medicinal Articles (New and Non-official Remedies, 1931, p. 477):

Arzol Chemical Co.
- Silver Nitrate Applicators (Silver Nitrate 75%)

E. R. Squibb & Sons
- Cinchophen—Squibb

Yours truly,
W. A. PUCKNER, *Secretary,*
Council on Pharmacy and Chemistry.

NEWS ITEMS

A DEMONSTRATION BY DR. SOMA WEISS BEFORE THE NEW YORK ACADEMY OF MEDICINE—Dr. Soma Weiss of Boston recently explained a method of measuring the amount and speed of blood flowing through the heart and other organs by the use of a radium salt injected into the veins of a living person, in an address before the New York Academy of Medicine. By this means and the use of certain instruments, Dr. Weiss has been studying the cause of symptoms in connection with weakening of the heart.

DR. JOHN HOMANS SPEAKS BEFORE THE NEW YORK ACADEMY OF MEDICINE—In the fifth session of the New York Academy of Medicine's Graduate Fortnight Dr. John Homans of Boston spoke on the treatment of varicose veins and protested against the use of icebags in the preoperative treatment of these lesions. He advocated the use of rest and warm applications.

ANOTHER AWARD TO PROFESSOR W. B. CANNON—Lord Dawson of Penn announced at the annual Harveian commemoration of the Royal College of Physicians October 19, 1931 that the Baley medal had been awarded to Dr. Walter B. Cannon, the George Higginson Professor of Physiology in the Harvard University Medical School.

DR. ARTHUR W. MARSH HAS ACCEPTED MEMBERSHIP ON THE BOARD OF TRUSTEES OF THE WORCESTER CITY HOSPITAL—Dr. Arthur W. Marsh, who recently retired from the Surgical Staff of the Worcester City Hospital, has been appointed to the Board of Trustees of this institution.

THE APPOINTMENT OF DR. EARL K. HOLT—A successor to the late Dr. Elisha H. Cohoon who served the Commonwealth as Superintendent of the State Hospital at Medfield, most acceptably, has been found in the person of Dr. Earl K. Holt.

Dr. Holt has been the director of the division for the examination of prisoners in the State Department of Mental Diseases. This appointment made by the board of trustees of the Medfield State Hospital has been approved by Dr. George M. Kline, the Commissioner of Mental Diseases.

Dr. Holt received his degree of M.D. from the Indiana University School of Medicine in 1914. He held appointments in institutions for the care of diseases of the mind in Indiana for a short time and later entered the U. S. Army Medical Corps in the neuropsychiatric service. In 1924 he accepted the position of assistant superintendent at the Monson State Hospital at Palmer. For the past 18 months he has been assistant to Dr. Kline.

Dr. Holt is a member of the Massachusetts Medical Society, the American Psychiatric Association, the Massachusetts Society of Psychiatry, the American Prison Association and the American Legion.

THE FOURTH AWARD OF THE FAUCHARD MEDAL PRESENTED BY THE PUBLISHERS OF *DENTAL SURVEY*—The scientific research work in dental nutrition conducted by Dr. Percy R. Howe, A.B., D.D.S., D.Sc., has brought to him well-merited recognition as shown by the award of the Fauchard Medal by the publishers of *Dental Survey*.

The three previous recipients of this award are Dr. Thaddeus P. Hyatt, George Eastman and Dr. Russell W. Bunting.

Dr. Howe is Professor of Dental Science in the Harvard Medical School, Director of the Forsyth Dental Infirmary and past president of the American Dental Association.

The Fauchard Medal is awarded once each year to the person "whose achievements have materially aided and advanced the field of preventive dentistry; in recognition of his personality, leadership and inspiration to coworkers; for his activities in promoting a greater interest and developing progressive thought and the highest ideals in this phase of dentistry as a branch of health service".

It is stated in *Dental Survey* that Dr. Howe is the first dentist to conduct research in dental nutrition on a scientific basis.

His work on diet in its influence on oral diseases stands as a notable contribution to the subject as is also his investigation of the causes of pyorrhea.

The medal was presented at a luncheon held in Memphis at the time of the recent meeting of the American Dental Association.

NOTICES

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P. M., on Thursday, November 19, in the Amphitheatre of the Peter Bent Brigham Hospital, a medical clinic will be given by Dr. Campbell P. Howard, Professor of Medicine, McGill University, Physician to the Montreal General Hospital, and Physician-in-Chief, pro tempore, Peter Bent Brigham Hospital, Boston. Physicians are cordially invited to attend. The clinics will be held regularly on Thursday afternoons.

RADIO HEALTH MESSAGES

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZA. Thursdays at 5:17 P. M.

November

19 Accidents in the Home

26 Fatigue as a Symptom of Disease

December
3 Overweight—Cause and Prevention
10 Can We Prolong Life?
17 Pasteurized or Raw Milk
24 Public Health in the Coming Year
31 Mental Health

STATE HOUSE BROADCAST

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 12:30 P. M.

The various activities of the Department are discussed by the Directors of its nine Divisions.

RADIO HEALTH FORUM

Directed by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 4:50 P. M.

Queries from the public are answered under the sponsorship of the Department.

Questions on Health and Prevention of Disease may be sent to: Radio Health Forum, State Department of Public Health, State House, Boston.

PROGRAM

SPECIAL SERIES OF BROADCASTS

Sponsored by the Massachusetts Department of Public Health. Courtesy WEEI. Mondays at 7:15 P. M.

Health from Zero to Ninety

November
16 Prenatal and Infant Health
Harold C. Stuart, M.D.
23 Preschool and School Health
Stanley H. Osborn, M.D.
30 Health and the College Student
Mary DeKruif, M.D.

December
7 Health and Safety of the Young Adult
C.-E. A. Winslow, Ph.D.
14 Health At and After the Prime of Life
Herbert L. Lombard, M.D.

WHITE HOUSE CONFERENCE ON CHILD HEALTH AND PROTECTION

Round Tables

December
21 Round Table No. 1—Why Another Conference?
Conducted by George H. Bigelow, M.D.
28 Round Table No. 2—How Much Care Does the Well Child Need?
Conducted by Mr. Frank W. Kiernan

1932
January
4 Round Table No. 3—Health in Education—Education in Health
Conducted by Raymond Patterson, Ph.D.
11 Round Table No. 4—What a Community Owes to Its Children
Conducted by Lila Owen Burbank, M.D.
18 Round Table No. 5—Unto the Least of These
Conducted by Mr. Alfred F. Whitman

REPORTS AND NOTICES OF MEETINGS

THE MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH

The autumn meeting of the Massachusetts Association of Boards of Health was held in Boston, October 29, 1931. The principal subject discussed was Infantile Paralysis. The members were invited to attend a demonstration of the after treatment of cases by massage and muscle training at the Clinic of the Harvard Infantile Paralysis Commission at the Bader Building of the Children's Hospital from 11 until 12:30 o'clock.

At 1 o'clock luncheon was served in the University Club. Following this social function the meeting was called to order by Dr. Trowbridge of Worcester in the chair, in place of the President, Dr. Francis G. Curtis of Newton, who was detained at home by illness.

The first business was the report of the Committee appointed at a previous meeting to consider methods and report recommendations for dealing with rabies in Massachusetts. The recommendations presented are in substance as follows:

1. All stray and unlicensed dogs should be taken in charge and cared for.
2. Restraining orders should be promulgated and enforced by the State Department of Public Health.
3. The antirabic vaccination should be encouraged and repeated from time to time. If continued for four years it is believed that permanent immunity would be brought about.
4. Quarantining and restraining of dogs for periods exceeding thirty days is unnecessary.
5. Shooting of suspected dogs should only be done by properly qualified officials.

The next subject on the program was a continuation of the instruction of the forenoon with respect to infantile paralysis by Dr. Arthur T. Legg, who first explained the bad effects of too early application of orthopedic treatment because of the liability of harming a weakened muscle if subjected to fatigue. Following the paralysis there is more or less pain or sensitiveness in the affected muscles and joints, and until this stage has passed rest and immobilization are demanded. One of the difficulties encountered by the physician is the impatience of parents of paralyzed children with respect to the necessarily slow progress of convalescence, for it is recognized in certain cases that rest in bed for many months is essential.

During the painful period hot, moist packs are helpful. In order to prevent contraction and deformity, splints to the arms and legs and braces to the body are required according to the muscles affected.

Massage during the sensitive period is harmful, but when the sensitive stage is over then massage and mechanical supports play an important rôle in the treatment, but over-fatigue must be avoided

and the muscle training must be under the direction of experts in functional anatomy.

Much harm has been done in the past by unwise medical gymnastics and allowing too early walking. A rule has been made that no case should be allowed to walk if unable to stand in normal position. A clear explanation of the use of the under-water treatment was given which, in brief, means taking from weakened muscles the full weight of the affected parts, for muscles can be trained to resume normal motion when relieved of part of the burden of weight by the under-water plan.

These under-water exercises may include walking about with splints on the legs and climbing stairs. In the under-water treatment the temperature is best kept at 90° F., both because it is comfortable and the warmth relieves the sensitiveness of the muscles and joints.

Contrary to the opinions of some, electricity is not helpful in dealing with infantile paralysis and may do harm. In cases of respiratory paralysis the use of the Drinker machine is of great value and may be an adjunct to any other treatment, for thereby the weakened muscles are assisted to function without undue fatigue.

The better pulmonary ventilation incident to the use of the Drinker respirator diminishes the liability to respiratory diseases.

After these very interesting explanations of the problems encountered in dealing with infantile paralysis Dr. Legg showed a series of pictures illustrating his lecture, many of which seemed to indicate that the scientific treatment of the postparalytic conditions can bring about most gratifying improvement of the damaged structures, in many cases approximating normal conditions.

Dr. George H. Bigelow, the Commissioner of Public Health, then explained the features of the act providing for the registration of barbers which will be operative next January. He found many provisions in the act which are confusing and to some extent conflicting.

He had tried to get opinions from the Attorney General's office with respect to some features of the text of the act, but is not quite sure about the functions of health officials in dealing with the Board which will be created under the act. He was hopeful that coöperation of health officials and the Board in charge of the registration of barbers would be feasible.

The meeting was successful both because of the character of the addresses and the large attendance.

HARVARD MEDICAL SOCIETY

The first meeting of the eighteenth year of the Harvard Medical Society was held October 27 in the auditorium of the Peter Bent Brigham Hospital. Dr. Edward S. Emery presided and introduced the speakers.

The medical case was presented by Dr. E. C. Eppinger: A sixty-year-old clerk entered the hospital complaining of pain in the right upper quadrant and epigastrium for the past seven years. He had typhoid fever as a child, and until twelve years ago used alcohol moderately. His present symptoms began insidiously, with a dull, aching pain, radiating to the right shoulder, and relieved completely by vomiting or food. There were frequent remissions. For three months before admission the pain was constant, and for three days he had had tarry stools. Physical examination showed marked pallor (which was reported to have lasted for three weeks before admission), general arteriosclerosis, and moderate hypertension. There was a secondary anemia (red count 3.0), and the stools showed occult blood. He was placed upon the Sippy diet for two weeks. The gastric bleeding ceased, and he was transfused. Ten days later the red count was 4,900,000. He then developed signs of decompensation, not responding to digitalis. The blood carbon dioxide was 65. at this time, so the Sippy diet was discontinued and the signs of decompensation soon disappeared. The x-ray was typical of gastric ulcer. The patient now is in a satisfactory condition.

Dr. William Mahoney presented the surgical case. The patient, a twenty-five-year-old American school teacher, came into the hospital complaining of severe occipital headaches, visual disturbances, and a staggering gait of six weeks' duration. He had a typical right cerebellar syndrome with choking of four or five diopters. A suboccipital exploration was done by Dr. Cushing, disclosing a cyst containing 40 cc. of fluid and a mural hemangioblastoma which was removed. The immediate postoperative course was stormy, and it was necessary to resort to nasal feedings. He has since made an uneventful recovery, and is at present almost entirely free from symptoms.

The case was of especial interest because of Dr. Lindau's original monograph on this condition. In the case presented, no hemangiomatous nodules have been found in the retina. Dr. Lindau pointed out that fortunately for the patient hemangioblastomas are usually single. The relationship is analogous to that of acoustic neuromas and von Recklinghausen's disease.

Dr. Arvid Lindau of Lund, Sweden, spoke on "The Peptic Genesis of Gastric and Duodenal Ulcer."

It has long been recognized that peptic ulcer occurs only in those portions of the gastro-intestinal tract that are exposed to the direct action of the gastric juice and that clinical improvement usually takes place when the gastric acidity is reduced. Local infarction, spasm of the blood vessels, focal infections, mechanical, thermal, and chemical irritation have all been cited as factors that might allow a natural secretion to become harmful.

Recent researches have shown an almost constant presence of chronic gastritis in cases of peptic ulcer. That the gastritis is not secondary to the ulcer is probable because it is seen throughout the whole pylorus and not simply in the region of the ulcer. Also some cases with a typical ulcer story show only

the gastritis and no ulcer. These changes are attributed to mechanical or thermal irritation by some authorities, but this offers no explanation for the specific type of gastritis. Dr. Lindau believes that the primary injury is due to an excess of acid.

The fundus glands contain chief and parietal cells and secrete all the acid and pepsin, while the pyloric glands secrete a neutral or slightly alkaline mucinous fluid. Ulcers are rare in the fundus. Most of them occur in the pyloric type of mucosa which extends higher along the lesser curvature than along the greater. Rarely ulcers are found in the cardiac area where no acid is secreted, and in some cases of gastric obstruction with regurgitation of acid, ulcers of the esophagus are seen. Duodenal ulcers are usually very close to the pylorus and never below the papilla of Vater.

Normal or high gastric acidity is the rule in peptic ulcers and low acidity is rare. A low gastric acidity in an old ulcer is of little significance. No recent ulcer has been found in an anacid stomach; and no chronic ulcers have been observed in cases of pernicious anemia.

Three factors might play a rôle in the production of ulcers by the gastric hydrochloric acid. First, there might be a supersecretion of nervous origin, either psychic, or due to organic brain lesions, or from the stimulation of highly seasoned foods. Secondly, there might be an unsatisfactory activity of the protective mechanisms, such as dilution by other fluids, inhibition of secretion at rest, the secretion of mucus by the gastric mucosa, and neutralization by the alkaline enteric secretions. Thirdly, there might be a change in the blood supply, either local or general. The vegetative nervous system could well influence any of these three factors.

Experimentally an erosive gastritis may be produced by introducing hydrochloric acid into the stomach of cats, or in rats by the injection of histamine. Transplantation of the bile and pancreatic ducts to the lower part of the intestine constantly leads to the formation of chronic ulcers.

Typically, ulcers do not occur below the mouth of the common bile duct. Exceptions are jejunal ulcers following gastro-jejunostomy, and ulcers of Meckel's diverticulum. The jejunal ulcers arise in areas of chronic inflammation corresponding to the gastritis seen in peptic ulcers. This jejunitis occurs only when the acid-secreting portion of the stomach has not been resected, is extremely rare in cases of cancer of the stomach, and histologically ceases at the point where bile has free access.

Meckel's diverticula, in about a sixth of the cases, show gastric mucosa exactly similar to that of the fundus. Both pepsin and hydrochloric acid are secreted. Ulcers of the neighboring intestinal mucosa have been reported in thirty-five cases.

This lesion is found chiefly in male children. The important symptoms are pain, intestinal hemorrhage, and those of perforation. The pain is often after meals, resembling that of peptic ulcer. Blood in the stools is often bright red. The differential diagnosis includes intussusception and rectal polyp.

In these cases all theories of the origin of the ulcer are easily disproved, except that it is due to the direct action of the gastric secretion.

Therapeutically, this conception of the production of gastric ulcers demands that acid production be reduced and controlled by diets and by alkaline medication. Greater attention must be directed to reducing psychic secretion. If operation is done, the Billroth I is recommended.

Dr. Harvey Cushing spoke upon "The Possible Relation of the Central (Vegetative) Nervous System to Peptic Ulcers." He presented several case histories to show this relationship.

The first patient of this series was observed in 1915. A large cerebellar hemangioblastoma was removed. As soon as consciousness was regained the patient complained of severe abdominal pain and tenderness, vomited, and became feverish. Death resulted twenty-four hours after operation. At autopsy general peritonitis resulting from three acute perforations in the stomach was found. There were also long slits in the mucosa and muscularis of the fundus. The possibility of a stomach rupture due to overdistention from intratracheal anesthesia was entertained at that time.

In 1927 a cerebellar astrocytoma was removed from a thirty-four-year-old male under local anesthesia. The tumor extended into the spinal canal, making complete resection impossible. The patient recovered from the operation, but ten hours thereafter developed acute abdominal pain, became restless, and died in twenty-four hours. Postmortem examination showed fluid in the abdomen, and two large perforations in the proximal duodenum. Histological examination proved they were antemortem. The stomach was negative.

A year later a boy of ten years had a partial removal of a large medulloblastoma which practically surrounded the cerebellum. Gas-ether anesthesia was employed. Soon after operation he began to vomit dark fluid containing blood, and died in two days. A large perforation in the esophagus was found on autopsy. It was located a few inches above the cardia. The left chest was full of the same material that he had vomited. The abdomen was negative.

These cases were all acute ulcers. "It is possible," Dr. Cushing suggested, "that many of them heal while only a few persist, to become chronic." This may account for a chronic duodenal ulcer in the case of a girl of ten years who died from a recurrent medulloblastoma of the cerebellum. Most of the large tumor was removed two years before death, and a second operation was done a year later. Radiation was employed after each operation. Autopsy showed that the tumor had extended to fill the ventricles. The ulcer in the duodenum was a typical peptic ulcer.

It has also been observed that many patients dying after tumor operations have had numerous punctate lesions in the stomach. Many had bloody vomiting as well. Very early postmortem gastric digestion was noted in several cases. These effects may con-

ceivably be due to parasympathetic stimulation of the centers in the midbrain.

Dr. Richard U. Light's paper was entitled "Experimental Observations on the Production of Ulcers by Pilocarpine."

He reported the results of the injection of pilocarpine, a stimulant of the parasympathetic, into rabbits. These experiments were suggested by Dr. Cushing, because of his clinical observations recorded above. It has been known that lesions of the central nervous system will produce gastric ulcers, but it never had been suggested before that stimulation of the cranial nuclei might lead to the same results.

Underhill has discovered that large amounts (250 mg.) of pilocarpine injected subcutaneously will produce gastric ulcers (erosions) in rabbits. Dr. Light found that such small amounts as 10 mg. injected into the ventricles would produce ulceration in nearly all cases. This amount subcutaneously produced practically no ulcers, and none whatsoever if injected intravenously or intraperitoneally.

The ulcers were extremely acute, being present about two and a half hours after injection. They would heal completely in two days. Histologically, the mucosa of the affected areas first showed anemia, produced by strong muscular contraction, then hemorrhages on the surface, and finally necrosis with the sloughing of tissue down to the submucosa, but never into deeper tissue layers.

Some experiments were carried out under Dial anesthesia. This compound is supposed to anesthetize the nuclei of the midbrain. Following its use, fewer ulcers developed.

It is suggested from these experiments that the primary cause of ulcer is not peripheral, but is due to central stimulation of nerves which will produce anemia of the gastric mucosa either by vascular or muscular contraction. The anemic area is susceptible to the gastric digestive juice, and ulcer is thereby produced.

In the discussion of the papers Dr. Bard stated that it would be of value to determine whether the nervous pathway from the diencephalon follows the sympathetic or parasympathetic pathway. Dr. Cushing called attention to the fact that none of the lesions in his series or in those experimentally produced by Dr. Light were in the pylorus, which is the common seat of the chronic peptic ulcer.

Dr. Lindau, in conclusion, stated that little can be learned of chronic ulcers from a study of the acute types. They form entirely different classes. The acute cases tend to heal rapidly, resembling hemorrhagic erosions. Aschoff believes they have no relation to peptic ulcer.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

The Essex South District Medical Society held its regular meeting at Salem Hospital at 5 P. M., November 4, 1931.

The following clinical program was presented:

1. Dr. M. T. Field.
   Tumor of tonsil.
   Appendicitis in old age.
2. Dr. W. G. Phippen.
   Appendicitis in infancy.
   Tannic acid treatment of burns.
3. Dr. G. E. Tucker.
   Pathological specimen (heart).
4. Dr. C. L. Curtis.
   Plastic of hand.
   Fracture dislocation of hip.
   Tumor of colon.
5. Dr. C. H. Hogan, Jr.
   Two cases of poliomyelitis.
6. Dr. E. L. Peirson, Jr.
   Treatment of ureteral stones.
7. Dr. W. V. McDermott.
   Present status of poliomyelitis.

At the close of the dinner served by the hospital in the nurses' dining room, the meeting adjourned to the assembly hall in the new nurses' home where an address was given by Dr. William P. Murphy of Boston, whose subject was "Present Status of Diagnosis and Treatment of the Various Anemias."

The thanks of the society were extended to Dr. Murphy for his essay, and to the Salem Hospital for its gracious hospitality.

WM. T. HOPKINS, *Reporter.*

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The ninety-first quarterly meeting of the Essex North District Medical Society was held in conjunction with the Essex South and Middlesex East and North Societies at the Danvers State Hospital, on October 14, 1931, with one hundred and fifteen present. From 2 to 2:30 there was inspection of the hospital, including the Occupational Therapy and Industrial Departments and the new Cafeteria. At 3:30, in the Chapel, Dr. Thomas J. O'Brien, executive assistant to the President of the state society, gave a discourse on the menace of Chiropractic, the probability being that the subject would go before the voters on the initiative, also on other general matters of interest regarding the state society.

Then followed a demonstration of encephalitis lethargica by Dr. Solomon Gagnon and a demonstration of general paresis by Dr. Henry A. Tadgell, with cases showing excellent results being obtained by thermal treatments. One case in particular, in bad condition on admission, is now well able to carry on in the outside world. The fact that there are six hundred demissions a year at the hospital demonstrates that this type of institution has not remained entirely custodial in its treatment for mental sickness.

A very excellent paper by Dr. C. A. Bonner on "The Rôle of Psychiatry in the Practice of Medicine" followed. This was received with much enthusiasm.

An unusually good buffet supper was served to the members and guests following the close of the meeting.

E. S. BAGNALL, *Secretary.*

HARVARD MEDICAL SCHOOL

LECTURE ON THE CARE OF THE PATIENT

Dr. Stewart R. Roberts, Professor of Clinical Medicine at Emory University, Atlanta, Georgia, delivered a lecture on the care of the patient at Harvard Medical School on the afternoon of October 28. His subject was "The Art and Human Nature."

The practice of medicine may be considered an attempt at science, a glorified art, and a valuable public function. Science governs the diagnosis and treatment of the pathologic condition; art the understanding of human nature. More science than art is learned in the school and hospital. Science without art is simply a mass of facts; art without science simply a mass of words. Experience and art are the slow yielding gifts of the years and the two advance hand in hand. Dr. Roberts feels that the young man could do nothing more valuable than spend a few months with a country practitioner learning something of the art from him.

Art enables the physician to allay the fears of the patient and his family. It is only natural for them to worry and to want the truth although they often fear it. The doctor should not talk too much and should not discuss the differential diagnosis with them. They are entitled to the final conclusions and not to the psychological mechanisms by which these are reached. Judicious consultations do much to satisfy an anxious family and are also a continual source of comfort and information to the young doctor. While the truth should not be concealed it need not be given abruptly but may be allowed to unfold itself gradually. The prognosis should always be true but it may well be guarded and the physician should not play the rôle of prophet when the facts of the case are obscure. In practice one finds that the art has an economic side that was not fully realized while in the school or the hospital. As far as possible the art should be shielded from this and in any event every patient is entitled to the best of care regardless of the question of expense.

A personal human touch is necessary with every patient and the management of every case is a problem in personality. The individual with cancer or heart disease needs treatment fully as well as the pathological condition itself. The art is not the medicine of either the mind, the body, or the soul but the one great medicine of the entire personality.

Dr. Roberts has promised to have his paper published in full in the *Journal.*

This preliminary notice should lead to reading of the paper, which will appear as soon as it is received.

SOUTHBRIDGE DISTRICT MEDICAL SOCIETY

The Southbridge District Medical Society held its annual meeting at Juniper Hall, in Shrewsbury, Wednesday, October 14. Following a most delightful dinner which was served at the hospital, the following officers were elected for the ensuing year:

President, Dr. George W. Webster; Vice-president, Dr. George Tully; Secretary and Treasurer, Dr. Theodore L. Story.

This society has now been operating for over a year, and the attendance at all meetings has been practically 100 per cent. Great interest has been manifested by the members of the society in the new hospital, and coöperation between the two is at the highest point.

THEODORE L. STORY, M.D., *Secretary.*

THE LYNN MEDICAL FRATERNITY

The Lynn Medical Fraternity held its initial meeting of the season in the Venetian Room at Huntt's Grill, at 8 P. M., October 29, 1931.

The guests of the evening were Dr. Frank H. Lahey and Dr. Sara M. Jordan of the Lahey Clinic.

Dr. Jordan's subject was "Gastric and Duodenal Ulcers," and Dr. Lahey spoke upon "Carcinoma of the Colon and Rectum."

The seventy members present evinced their interest and appreciation by an active discussion from the floor.

WM. T. HOPKINS, *Reporter.*

NEW ENGLAND OBSTETRICAL AND GYNECOLOGICAL SOCIETY

The Fall Meeting of the New England Obstetrical and Gynecological Society will take place on Wednesday, December 2, 1931. The headquarters of the Society will be, as usual, at the University Club, where a buffet lunch will be served at noon, and a dinner at night.

It has been thought that this year, rather than have clinics in the several Boston hospitals, it would be better to concentrate on two morning clinics and two afternoon clinics. The morning clinics, therefore, will be held at the Women's Free Hospital in Brookline and the Gynecological Service of the Boston City Hospital. The afternoon clinics will be held at the Carney Hospital and the Boston Lying-in Hospital.

These arrangements are now in progress and a complete programme will be mailed to each of the members within a few days.

FRED. J. LYNCH, M.D., *Recorder.*

THE NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS

The annual meeting of the National Society for the Prevention of Blindness will be held on Thursday, November 19, in the Russell Sage Foundation Building, 130 East 22nd Street, New York City, it is announced by Lewis H. Carris, Managing Director.

Dr. William Campbell Posey, of Philadelphia, Pa., a member of the Society's Board of Directors, will speak on "The Evolution of the Cataract Operation." Following this address a motion picture to demonstrate the cataract operation will be presented by Dr. Frank C. Parker, of Norristown, Pa.

Among other topics that will come up for discussion will be medical social service in eye hospitals and clinics, preventing eye troubles in babies, sight-saving classes for children with defective vision, trachoma research, prevention of industrial eye injuries, etc. Members and friends of the Society are cordially invited to attend.

NEISSERIAN MEDICAL SOCIETY OF MASSACHUSETTS

The first annual meeting of the Neisserian Medical Society of Massachusetts will be held Wednesday, November 18, at 8 P. M., at the Boston Dispensary.

PROGRAM

Symposium on Gonorrheal Vulvo-vaginitis

1. A Statement of the Problem. Dr. N. A. Nelson, Assistant Director, Division of Communicable Diseases, Massachusetts Department of Public Health.
2. The Point of View of the Clinician. Dr. A. K. Paine, Chief, Department of Gynecology, Boston Dispensary.
3. The Point of View of the Children's Hospital and the Pediatrician. Dr. Harold F. Stuart, Children's Hospital, Boston, and the Harvard School of Public Health.
4. The Point of View of the Institution. Dr. J. R. Hamilton, Resident Pediatrician, Long Island Hospital.
5. The Point of View of the School Physician. Dr. Solomon H. Rubin, Acting Director of School Hygiene, Boston School Department.
6. A Study of Several Hundred Cases. Dr. Walter M. Brunet, Medical Director, Chicago Public Health Institute.

Dr. Walter M. Brunet, formerly of New York but now Medical Director of the Chicago Public Health Institute (which specializes in the treatment of gonorrhea and syphilis), recently completed a study of between 300 and 400 cases of gonorrheal vulvo-vaginitis. This report has not yet been published so that what he has to say concerning this work and the conclusions drawn will be entirely new material. It should, therefore, be well worth unusual attention on the part of the medical profession.

Following this more or less formal statement of the problem, the meeting will be thrown open to general discussion.

Gonorrheal vulvo-vaginitis constitutes an important part of the problem of gonorrhea in the female, especially as it involves the school child. So little has been done in the nature of research; so little is known concerning the proper management of this condition; and the whole subject has been so long buried in a shroud of prudery that the Neisserian Medical Society of Massachusetts believes the time has come when this problem should be exposed to the light of sound and sane investigation.

School physicians, chairmen of the boards of health or their representatives and the medical profession at large are invited to attend this meeting.

DR. J. DELLINGER BARNEY, *President.*
DR. OSCAR F. COX, JR., *Secretary.*

NEW ENGLAND PHYSICAL THERAPY SOCIETY

The next regular meeting of the New England Physical Therapy Society will be held at the Boston Square and Compass Club, 448 Beacon Street, Boston, at eight o'clock in the evening of Wednesday, November 18, 1931.

The usual dinner will be served at 6:30 o'clock. This hour with its opportunity for informal discussion has become a most enjoyable part of our meetings—better sit in.

At 7:30 o'clock, by vote of the Society, another film from the State Department of Public Health will be shown.

The paper of the evening will be: "Certain Aspects of the Physiology of the Sympathetic Nervous System," Norman E. Freeman, M.D., Department of Physiology, Harvard University School of Medicine, Boston, Massachusetts.

General Discussion.

The council will meet at 6 o'clock.

All members of the medical profession are cordially invited.

ARTHUR H. RING, M.D., *Secretary.*
Arlington, Mass.

BOSTON MEDICAL HISTORY CLUB

John Ware Hall, 8 The Fenway
Monday, November 16, at 8:15 P. M.

MEDICAL PAGEANT OF 1931

Illustrious Physicians from the time of Babylon to the Modern Era, Portrayed in Costume. Presented by Students of Tufts Medical School Under the Direction of Dr. Benjamin Spector.

Exhibition of Historical Texts.

Medical Profession and Medical Students Cordially Invited to Attend the Performance.

JAMES F. BALLARD, *Secretary*

NEW ENGLAND ROENTGEN RAY SOCIETY

The November Meeting of the New England Roentgen Ray Society will be held at the Boston City Hospital on Friday, November 20, at 8:00 P. M.

The following program has been arranged:

Massive Collapse Complicating Pneumonia, Dr. H. L. Loverud.

Lipiodol Localization of Gall Stones. Dr. M. I. Smedal.

Myeloma. Dr. A. M. Moloney.

Treatment of Syringomyelia. Dr. F. W. O'Brien.

Physostigmine, a peristaltic stimulant. Dr. M. Ritvo.

Two Interesting X-ray Problems. Dr. P. F. Butler. Demonstration of Plates by Dr. Benjamin L. Li.

T. R. HEALY, M.D., *Secretary.*

370 Marlborough Street, Boston, Mass.

NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN

The regular clinico-pathologic conference of the New England Hospital for Women and Children, Dimock Street, Roxbury, will be held at the hospital Thursday, November 19, at 8 P. M., presenting the following cases: Tuberculosis of the breast; Fracture of the skull; A case from the genito-urinary service.

ALICE H. BIGELOW, M.D., *Secretary.*

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke Street entrance), Tuesday evening, November 17, at 8:15 o'clock.

PROGRAM

Presentation of Cases.

Linitis Plastica and Other Rarer Forms of Gastric Cancer, by Dr. Campbell P. Howard, Professor of Medicine, McGill University, Physician to the Montreal General Hospital, and Physician-in-Chief, pro tempore, Peter Bent Brigham Hospital, Boston.

Medical students, nurses and physicians are cordially invited to attend.

JOHN HOMANS, *Secretary.*

PLYMOUTH DISTRICT MEDICAL SOCIETY

A stated meeting of the Plymouth District Medical Society will be held at the Moore Hospital, Brockton, Thursday, November 19, 1931 at 11 A. M.

PROGRAM

Business meeting.

Presentation of cases.

Speaker: Dr. E. Parker Hayden, Boston. Subject: Diseases of the Small and Large Intestine and Rectum.

GEO. A. MOORE, *Secretary.*

SOMERVILLE MEDICAL SOCIETY

Let's All Get Together

Occasion:

Joint Medical Meeting
Auspices Somerville Medical Society

Arlington Belmont Cambridge Everett Lexington Malden Medford Somerville Winchester

Time:

Wednesday Evening, November 18, 1931, at 8.15 o'clock.

Place:

Western Junior High School, Holland Street, Somerville.

Paper—Symposium:

Operative Complications—Surgical and Medical. To be illustrated by stereopticon views.

Speakers:

Arthur W. Allen, M.D.—Associate Surgeon at Massachusetts General Hospital—Instructor in Surgery at Harvard Medical School.

Channing Frothingham, M.D.—Physician to Peter Bent Brigham Hospital—Associate Clinical Professor at Harvard Medical School.

Discussion:

To be opened by William R. Morrison, M.D.—Associate Professor of Surgery at Boston University School of Medicine—Visiting Surgeon at the Boston City Hospital.

Refreshments.

Signed,

JOHN E. GILLIS, M.D., Somerville,
RICHARD A. DRAKE, M.D., Medford,
WILLIAM R. MORRISON, M.D., Belmont,
J. O. G. NILES, M.D., Everett,
CLARENCE E. ORDWAY, M.D., Winchester,
LOUIS S. SILVER, M.D., Malden,
FRANK E. TALTY, M.D., Arlington,
W. STEWART WHITTEMORE, M.D., Cambridge.

SUFFOLK DISTRICT MEDICAL SOCIETY

The November meeting of the Suffolk District Medical Society will be held at the Boston City Hospital, the Surgical Amphitheatre, on Wednesday, November 18, 1931, at 8:15 P. M.

Clinical Program presented by members of the Staff of the Thorndike Memorial Laboratory, Second and Fourth Medical Services, B. C. H.

1. Treatment of Malignant Leucopenia with Pentose Nucleotides. Henry Jackson, Jr., M.D.
2. The Use of Fowler's Solution in Leukemia. Claude E. Forkner, M.D.
3. The Mechanism and Treatment of the Paroxysmal Dyspnea and Asthma Associated with Heart Disease. Soma Weiss, M.D., George P. Robb, M.D.
4. The Importance of Infection in Arthritis. Chester S. Keefer, M.D.
5. Treatment of Cases of Anemia. George R. Minot, M.D., Clark W. Heath, M.D., Maurice B. Strauss, M.D.

It is anticipated that each speaker will illustrate the topic presented by one or more cases.

GEORGE S. DERBY, M.D., *President.*
LELAND S. MCKITTRICK, M.D., *Secretary.*

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

November 13-14—Annual Conference of Secretaries of Constituent State Medical Associations of the American Medical Association. See notice on page 934, issue of November 5.

November 16—Boston Medical History Club. See page 982.

November 17—South End Medical Club. See details on page 934, issue of November 5.

November 17—Harvard Medical Society. See page 983.

November 18—Neisserian Medical Society of Massachusetts. See page 982.

November 18—New England Physical Therapy Society. See page 982.

November 18—Somerville Medical Society. See page 983.

November 19—Medical Clinic at the Peter Bent Brigham Hospital. See page 976.

November 19—New England Hospital for Women and Children. See page 983.

November 19—The National Society for the Prevention of Blindness. See page 981.

November 20—New England Roentgen Ray Society. See page 982.

December 2—New England Obstetrical and Gynecological Society. See page 981.

November 25 - May 6—The William Harvey Society. See page 745, issue of October 8.

April 4-8, 1932—The American College of Physicians. See notice on page 1232, issue of June 4.

Autumn 1931—Spring 1932—International Medical Postgraduate Courses in Berlin. See page 468, issue of August 27.

DISTRICT MEDICAL SOCIETIES

Essex North District Medical Society

January 6, 1932—At Haverhill.

May 4, 1932—Annual meeting at Lawrence.

Essex South District Medical Society

December 2, Wednesday—Beverly Hospital. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Raymond S. Titus, Boston. Subject: Some Complications of Pregnancy and Puerperium.

January 6, 1932, Wednesday—Danvers State Hospital, Hathorne. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Harry Solomon, Boston. Subject: Modern Treatment of Syphilis.

February 3, 1932, Wednesday—Council Meeting, Boston.

February 10, 1932, Wednesday—Hawthorne Hotel, Salem. Dinner 7 P. M. Speakers: Dr. Lincoln F. Sise and Dr. Harry H. Germain. Subject: Selection of the Anesthetic for the Patient and Operation. Dr. Sise to speak from the viewpoint of the Anesthetist, and Dr. Germain from the viewpoint of the Surgeon.

March 2, 1932, Wednesday—Lynn Hospital. Clinic 5 P. M. Dinner 7 P. M. Subject to be announced later. Speaker: Dr. Elmer W. Barron, Boston.

April 6, 1932, Wednesday—Essex Sanatorium, Middleton. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Arthur P. Wakefield, State Department of Health. Subject: 10-Year Tuberculosis Program in the Public Schools.

May 5, 1932, Thursday—Censors' Meeting, Salem Hospital, 3:30 P. M.

May 10, 1932, Tuesday—Annual Meeting. The Tavern, Gloucester. Speaker and subject to be announced later. Ladies invited.

Franklin District Medical Society

Meetings will be held on the second Tuesday of January, March and May at the Weldon, Greenfield, at 11 A. M.

CHARLES MOLINE, Secretary.

Middlesex East District Medical Society

At a meeting of the executive committee the following schedule for the Middlesex East District Medical Society was arranged:

November 18—At Wakefield.

January—At Melrose.

March—At Reading.

May—At Woburn.

All meetings on the second Wednesday of each month unless otherwise announced.

Norfolk South District Medical Society

December 3—Speaker: George H. Bigelow, M.D., Commissioner of Public Health. Subject: Some Communicable Disease Control Problems.

January 7—Speaker: William Reid Morrison, M.D. Subject: Stomach Surgery.

February 4—This meeting will be held at the Quincy City Hospital. The program will be furnished by the members of the hospital staff.

March 3—Speaker: Roderick Heffron, M.D. Subject: Pneumonia.

April 7—To be announced later.

May 5—Annual meeting.

The time of all meetings is 12 o'clock noon. All meetings, except February 4, will be held at the Norfolk County Hospital, South Braintree. Censors will meet on November 5 and May 5 at 11:15 A. M. at the Norfolk County Hospital.

N. R. PILLSBURY, Secretary.

Plymouth District Medical Society

November 19—See page 983.

Suffolk District Medical Society

November 18 - April 27—The schedule of the seven monthly meetings of the Suffolk District Medical Society and the Boston Medical Library which will be held during 1931-32 on Wednesdays at 8:15 P. M., appears below.

November 18, 1931—Clinical Program, Thorndike Memorial Laboratory, 2d and 4th Medical Services of the Boston City Hospital.

December 16, 1931—Clinical Program, Peter Bent Brigham Hospital.

January 27, 1932—General Meeting in Association with the Boston Medical Library. Titles and speakers to be announced later.

February 24, 1932—Clinical Program, the Children's Hospital.

March 30, 1932—Clinical Program, New England Deaconess Hospital.

April 27, 1932—The Annual Meeting, Boston Medical Library. Election of Officers.

The Medical Profession is cordially invited to attend all of these meetings.

GEORGE S. DERBY, M.D., President.
LELAND S. McKITTRICK, M.D., Secretary.
HILBERT F. DAY, M.D., Boston Medical Library.

November 18—See page 983.

Worcester District Medical Society

Wednesday evening, December 9, 1931—Worcester Chamber of Commerce Rooms, Franklin Street, Worcester, Mass. 7:45—Program: Subject in the field of Eye, Ear, Nose and Throat to be announced later.

Wednesday evening, January 13, 1932—Worcester City Hospital, Worcester, Mass. 6:30—Dinner, complimentary by City Hospital. 7:45—Program: To be announced later.

Wednesday evening, February 10, 1932—Worcester State Hospital. 6:30—Dinner, complimentary by the Worcester State Hospital. 7:45—A psychiatric program to be announced later.

Wednesday evening, March 9, 1932—Memorial Hospital, Worcester, Mass. 6:30—Dinner, complimentary by Memorial Hospital. 7:45—A pediatric meeting with subjects to be announced later.

Wednesday evening, April 13, 1932—Grafton State Hospital, North Grafton, Mass. 6:30—Dinner, complimentary by Grafton State Hospital. 7:45—Program to be announced later.

Wednesday afternoon and evening, May 11, 1932—Annual Meeting. Program to be announced later.

ERWIN C. MILLER, Secretary.

BOOK REVIEWS

Approved Laboratory Technic. By JOHN A. KOLMER and FRED. BOERNER, assisted by C. Zent Garber and others. Pp. 663. D. Appleton and Company, New York, 1931. $7.50.

This volume is a working handbook of clinical, pathological, bacteriological, serological, biochemical and histological laboratory methods and is prepared under the auspices of the American Society of Clinical Pathologists. The technic of the methods has been approved by the Committees of the American Society of Clinical Pathologists although, as the authors state, no attempt has been made on the part of the Society to approve or recommend any of the methods for the diagnosis of disease. When, however, methods are sponsored by such practical

and competent authorities as these authors, the lack of such approval does not detract from the value of the methods recommended.

Section I describes general laboratory methods such as the selection, use and care of laboratory apparatus, the housing, care and feeding of small animals, with the technic of injections, bleedings and postmortem examinations.

Section II deals with clinical pathological methods including the collection and preservation of specimens, and their physical and chemical examination.

Section III is devoted to bacteriological methods including the collection and examination of all body secretions, excretions and exudates. Under this section are also chapters on general and special diagnostic bacteriological methods listed according to the various infections and to the tissue or organ infected.

There are also chapters on methods for the bacteriological examination of milk and water and on methods for testing disinfectants, and for the preparation of bacterial vaccines.

Under Section IV are serological methods including agglutination, precipitin, and complement fixation tests, while the last section contains clinical methods such as the chemical examination of blood, urine, milk and other foods, toxicological examinations and histological examination of tissues. There are also descriptions of the technic of conducting kidney and liver functional tests, blood transfusion tests and the determination of basal metabolic rate.

Like other books from the pen of Doctor Kolmer, this volume is to be commended for its completeness, and its logical and orderly presentation of the subject matter. The illustrations are plentiful and excellent, while the choice of type and the paper and general make-up of the book leave nothing to be desired.

This book, therefore, is a comprehensive, clear and exact working handbook for the physician and laboratory worker, and contains between its two covers a vast amount of material which heretofore has been scattered in different volumes. It is highly recommended to all those who utilize or actually practice methods used in the many and varied laboratory procedures concerned in health and disease.

Surgical Pathology of Prostatic Obstructions. By ALEXANDER RANDALL, M.D., Professor of Urology, University of Pennsylvania. Published by the Williams & Wilkins Company, Baltimore, U. S. A. 266 pages. Price $7.00.

The surgical management of prostatic disease has made great progress in the past fifteen or twenty years. Operative mortality has been reduced and the functional results of prostatectomy are generally satisfactory. Our knowledge of the surgical pathology of the prostate gland, however, has increased very little since the publications of Sir Henry Thompson, Tandler and Zuckerkandl, Guyon, Albarran and other writers whose work was done in or before the early years of this century.

In this study of the surgical pathology of prostatic obstruction, Randall has given us a very timely and much-needed treatise. From 1215 autopsies he has selected 312 which showed gross pathological change in the prostate; these he has subdivided into 222 cases of benign hypertrophy, 57 cases of median bar formation, 17 cases of carcinoma and 16 cases of prostatic abscess. The outstanding contribution he has made, it seems to us, is his clear description of the varieties of hypertrophy as met by the clinician. Randall describes three chief types of hypertrophy, occurring singly or in combination; these types are lateral lobe hypertrophy, hypertrophy of the posterior commissural glandular tissue, and hypertrophy of the subcervical group of glands. Occasionally one meets hypertrophy of the anterior lobe and of the subtrigonal lobe.

The relation of these changes to age, race, marital history and other factors has been carefully noted, and whenever justifiable, deductions as to the relative time of development, the effect upon the patient and the best method of surgical approach have been drawn. Although we admire the pains taking care with which the data have been collected, our greatest praise must be for the sound, conservative judgment shown by the author in commenting upon these data. Each type of lesion is illustrated by excellent, life-size photographs of specimens, accompanied by an abstract of the clinical history and the autopsy findings.

Randall's findings in regard to the occurrence of carcinoma are at considerable variance with those of certain other investigators, notably Geraghty. In the first place, the percentage of carcinoma (5.4%) is only about one-fourth as large as that commonly found in clinical statistics. In these malignant cases, as Randall himself observes, the development of the neoplasm in the posterior lobe was conspicuous by its absence. Geraghty found that cancer originated in the posterior lobe in 80% of the cases he studied. It is difficult to explain this divergence in the findings of the two investigators. Our experience has led us to agree with Geraghty.

The finding of a number of cases of tuberculosis of the prostate and seminal vesicles without corresponding disease of the epididymes is also contrary to the theory, held by many, that tuberculosis first appears in the latter. It is by means of such studies as Randall's that these disputed questions are settled.

It is unfortunate that in a book involving so much work and evincing such thorough attention to accuracy of scientific detail, there were allowed to pass unnoticed so many typographical errors. We hope the author will see that these are corrected in subsequent editions.

The book will be welcomed by urologists for its practical value, and by teachers of surgery and pathologists because of its clarification of what has

heretofore been a rather poorly understood section of pathology.

Cutaneous X-Ray and Radium Therapy. By HENRY H. HAZEN. M.D. C. V. Mosby Co. 166 pp. 28 Illustrations. Price $3.00.

This book of 166 pages is a brief compendium of the treatment of skin diseases by x-ray and radium. The first half of the book is given over to the consideration of the historical aspect of this form of treatment, a description of standard x-ray and radium apparatus, dosage estimation with working tables, and the technique of their use. The chapter on the effect of radiation on normal tissues and the various sequelae of radiodermatitis is excellent.

The treatment of 79 dermatoses is covered in 68 pages, and as a result the information given on the individual conditions is extremely generalized and sketchy and is useful only as a guide, rather than a specific recommendation.

Although Dr. Hazen believes that roentgen therapy is the most useful addition to the treatment of skin diseases that has been made, he does not hesitate to relegate radiation to a minor rôle and to recommend other methods in various conditions. In these days when some advocate radiation as a universal dermatological panacea, it is refreshing to find such statements as these. Ringworm (Dermatophytosis) of the hands and feet is probably best treated by saline soaks, ultraviolet light, and antiseptic ointments. At times x-rays are very useful in clearing up lesions, but it is not the treatment of first choice, nor of routine. In acne vulgaris nearly two-thirds of the patients seen in private practice can be cured just as promptly without the use of x-rays as with it.

One cannot fail to be impressed with the conservatism of the author. Throughout the book he tries to impress the casual user of these forms of radiation with the dangers to both operator and patient through careless and unthinking operation.

Confessio Medici. By STEPHEN PAGET, F.R.C.S. The Macmillan Company, New York, 1931. xi + 158 pages. Price $2.00.

This book is a reprint of an essay published by Mr. Paget in 1908. Full of good advice, especially for the medical student and the beginning practitioner, this brief work has enjoyed a well-deserved popularity. The first edition is practically unobtainable and one welcomes this reprinting. Mr. Paget's essay, along with J. G. Mumford's "A Doctor's Table Talk", H. H. Bashford's "The Harley Street Calendar", and Sir William Osler's "The Student Life and Other Essays", forms a group of small books which should find their way into the hands of every medical student before his graduation.

The author of the "Confessio Medici", who died in 1926, was the son of Sir James Paget, the distinguished mid-Victorian surgeon, known to every physician through his description of two important diseases. Stephen Paget was the fourth and youngest son and the only one of the family to follow in his father's footsteps. He published a number of works, including lives of Paré, John Hunter, and Pasteur. One of his brilliant biographies, published in 1919, was the life of Sir Victor Horsley. In addition to his work on biography, Paget devoted a large part of his life to combating the antivivisection movement in England and he published many papers on the subject. His fondness for the medical students of the Middlesex Hospital, London, led him to write the book of essays now under review, the essence of which appeared in a brief work published as early as 1899. The rapidity with which these various editions have been absorbed by medical students is a tribute to their enduring worth.

The Commoner Nervous Diseases. By FREDERICK J. NATTRASS. Humphrey Milford, Oxford University Press, London, Edinburgh, Glasgow, etc., 1931. 218 pages. Price $4.00.

Dr. Nattrass has chosen to discuss from a modern point of view the well-known structural diseases of the nervous system and his material covers the great majority of the disease conditions which the general practitioner is likely to meet. The book is of considerable value on this account alone. Great judgment has been used, also, in regard to the descriptions of diseases, the anatomical nomenclature, and the accepted forms of treatment. In the opinion of the reviewer no previous book has covered the subject in a more satisfactory fashion. The book, therefore, can be highly recommended for both the student and the physician.

A Text-Book of Neuro-Anatomy. By ALBERT KUNTZ, PH.D., M.D. Phila.: Lea & Febiger, 1931. Pp. 1-xii + 17-359. Price $5.50.

It is a great pleasure to receive a new book by Professor Kuntz, who is already well known to the anatomical and neurological world by his previous publication on "The Autonomic Nervous System" in 1929. At that time the reviewer considered that the author had written the best book on the subject within his knowledge, and the same may be said of the present publication. Professor Kuntz has gathered together plates from many books on anatomy and neurology and incorporated them into his publication, with due credit to their sources. In addition, he has given us a number of excellent illustrations of his own. This feature of the book could not be improved upon. The text also contains good written descriptions on neuro-anatomy and the fundamentals of neurophysiology are expressed appropriately, without the usual amount of controversial material appearing in other books of a similar character. The latest researches on the cerebrospinal fluid pathways, the finer anatomy of the optic tracts, and the cerebral cortex are all carefully considered. This book deserves the highest recommendation.